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DETROIT

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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CAR SALES FINANCING TURNS UPWARD

New Car Sales During June Ran 29% Under Year Ago, First Returns Indicate

Total in Five States and District of Columbia 28,718, as Against 40,455 in 1929; Drop From May 20%

NEW YORK, July 17.—First definite line of new passenger car registrations in June, as compared with the preceding month and with June, 1929, was obtained today with the receipt by Automotive Daily News of complete registration returns for last month from four additional states and the District of Columbia.

With the Ilinois returns, previously received, totals are now available for five states and the District of Columbia, the other four states being North Carolina, Maryland, North Dakota and Delaware.

Total new car registrations in these states in June amounted to 28,718, as compared with 40,455 in the corresponding month of last year and with 35,905 units in the preceding month. This was a decline of 29 per cent. from last year and 20 per cent. from the

(Continued on Page 2)

K. RAY SPENCER NAMED REO REGIONAL MANAGER

Lansing Mich., July 17.—Appointment of K. Ray Spencer as regional manager in charge of the central region is announced by Elijah G. Poxson, general sales manager of the Reo Motor Car Company.

K. Ray Spencer

Since 1925 Mr. Spencer has been with the Chrysler Motor Corporation as regional sales manager. Before that he was associated for many years with Dodge Brother in charge of various district offices.

REDUCTION OF CRUDE OIL OUTPUT ASKED IN TEXAS

Fort Worth, Tex., July 17.—A cut of 126,000 barrels a day in production of crude oil in Texas has been recommended by operators of the state meeting here to receive a report on curtailment prepared by the so-called committee of six. The cut was suggested by the committee after a study of the demand and supply situation in Texas following the enactment of the new pipe line law. The report and the recommendation of the oil operators will be submitted to R. B. Parker, chief of the oil and gas division of the Texas Railroad Commission.

The committee's report showed that the daily average production of crude oil in Texas is 863,450 barrels, with a maximum demand for 786,950 barrels, or 76,500 barrels less than average production.

FORD CO. TO REOPEN PLANTS AUG. 1, WITH 6,500 DAILY OUTPUT

Detroit, July 17.—It is reported here that the Ford plant at River Rouge will reopen on August 1, with a schedule of 6,500 cars per day for the first ten days of that month. The steel companies report orders for sheets from Ford and other Detroit manufacturers, which in some cases have enabled production to be materially increased at the steel mills.

Automotive manufacturers here who are announcing new lines are placing materials orders and steel producers look for a moderate improvement in demand beginning some time in August and continuing through the rest of the year, as more companies get into production on the 1931 models.

Another increasingly favorable factor in the steel business is a steady demand for pipe. Oil companies are adding largely to their pipe line systems, the single 1,400 mile line from the Oklahoma oil fields to Des Moines, Omaha, Chicago and Minneapolis calling for approximately 75,000 tons of steel.

Representatives in Detroit of the steel manufacturing companies are unanimous in believing that July will mark the low-water mark in demand and that with fall a moderate but unmistakable upward trend will be seen.

ADVANCES TO PURCHASERS IN MAY TOP APRIL TOTAL; USED CARS CHIEF FACTOR

Demand for Loans on New Units Falls Off, but Sets a New Record for Used Vehicles; Wholesale Classification Off

By FRANCIS P. DALY

WASHINGTON, July 17.—Retail financing of new and used cars combined took a slight upward turn in May as compared with April, but did not approach the figure for May of last year, it was disclosed today by the Department of Commerce on the basis of reports received from 455 automobile financing organizations.

While financing of new cars took a drop as compared with April, there was a substantial increase in used car financing, May, with 171,269 units, setting a new high record in this classification.

The number of both new and used cars financed in May was 346,515 on which $146,191,179 was advanced as compared with 341,842 on which $144,891,375 was advanced in April and 398,561 on which $183,580,808 was advanced during May, 1929.

Wholesale financing in May took a drop as against the previous month but was approximately $10,000,000 in excess of May of last year. Dealers were advanced $82,029,398 in May as compared with $84,288,709 in April and $72,098,629 a year ago.

For the first five months of this year a total of 1,336,021 cars were financed to the extent of $569,709,945, as against 1,424,836 cars, representing $660,245,308 in the same period of last year.

A total of 167,106 new cars were financed in May, as against 169,994 in April and 212,239 in May, 1929.

For the first five months of this year new car financing aggregated 647,983, as against 764,452 units in the January-May period of 1929.

Financing of used cars in May

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CHRYSLER ANNOUNCES PRICES ON SMALLER OF NEW EIGHT LINES

Detroit, July 17.—Prices on the smaller of the two new Chrysler eight lines which were announced in Automotive Daily News July 8 were released today by the Chrysler Corporation. Prices of the Imperial eight line are to be announced later.

These two new lines are the first eight cylinder cars to carry the Chrysler name, although other divisions of the Chrysler Corporation have been producing eights for some time past. Full details on the two new lines will appear in Automotive Daily News July 19.

Prices on the new eight line released today are as follows: Roadster, $1,495; Coupe, $1,495; Sedan, $1,525; Convertible Coupe, $1,565; Sport Roadster, $1,595.

NEW TRUCK SALES IN SOUTH SET PACE FOR FIVE MONTHS

NEW YORK, July 17.—New commercial sales continued to run at a high level in the Southern states in May and this section of the country continued to lead the United States in sales of this type of motor vehicle, according to registration returns for the first five months of this year.

As in the first four months of the year, registrations of new trucks in the thirteen Southern states and the District of Columbia were higher in the first five months of the year in comparison with the corresponding period of 1929 than in any other section of states.

Registrations in the South amounted to 49,045 for the first five months, as compared with 53,249 in the corresponding period of last year, a decline of 4,204 units, equivalent to 7.9 per cent.

The next best record in truck sales, as compared with last year, was made in the Rocky Mountain states, where sales in eight states totaled 7,870, as against 8,576 a year ago, off 8.2 per cent., with the agricultural states of the Middle West scoring the next best record, with a decline of 8.7 per cent. from 20,620 last year to 18,818 this year.

The biggest decline from last year in new truck sales was in the three Pacific Coast states, with California, Washington and Idaho all showing substantial losses. Washington made

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General Motors Retail Sales Exceed Production

NEW YORK, July 17.—General Motors dealers delivered 97,318 cars and trucks to consumers in the United States in the month of June, as compared with 131,817 in May and 154,437 in June, 1929, according to announcement today by Alfred P. Sloan, Jr., president.

Reflecting the extent to which the corporation is holding production to actual retail demand, the retail sales in the United States alone in June amounted to the total world production of the company during the month.

Factory deliveries to dealers in the United States in June amounted to 87,595, this figure being approximately 10,000 below the actual retail sales by these dealers. This total compared with 136,169 in May and 163,704 in June, 1929.

Total sales to dealers, including Canadian sales and overseas shipments, amounted to 97,440 cars, or 4,000 cars per day, as compared with 147,483 in May, and with 200,754 in June, 1929.

The following table shows sales to consumers of General Motors cars in Continental United States, sales by the manufacturing divisions of General Motors to their dealers

(Continued on Page 2)

Moto Meter Offers New Hydraulic Shock Absorber

LONG ISLAND CITY, N. Y., **July 17.—To its list of automobile accessories new being manufactured the Moto Meter Gauge & Equipment Corporation has added a new hydraulic shock absorber.**

In general, the new accessory operates upon the conventional principles now widely used in the automotive field. Fundamentally, however, the new device incorporates variations in design which are advantageous in that the absorber's resistance to force is constant no matter how great the blow applied, according to Moto Meter engineers.

Instead of serving efficiently only on either a rough road or a boulevard, this new product is so designed and constructed that adjustment to either condition is automatic.

In construction the instrument is composed of a forged steel cylinder, within which, separating it into two variable chambers, is a heavy elliptical heart serving as a plunger. This plunger is held in place rotatably at one end by a pin which is an integral part of the cylinder. Operating the plunger there is an eccentric, the base of which is held rotatably within the cylinder and the other extremity affixed to the shock absorber arm.

This eccentric transmits the rotating motion of the arm to a variable rotating motion of the heart, the relationship being so arranged that the resisting force set up by the heart increases in direct proportion to the travel of the instrument.

In other words, with a slight reciprocating motion such as is present while the car is traversing a smooth street or road, the car springs are permitted free action. At the same time, a stiff blow is strongly opposed and damped, preventing the car springs from whipping on a rough road.

By this inherent feature the device provides a combination of free spring movement on a smooth road, together with vigorous spring damping and protection on rough roads.

Moto Meter has also added the motolever, operating as an extension handle to release and pull back or push forward the button-type emer-

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RETAIL FINANCING OF CARS GAINS IN MAY

(Continued from Page 1)

totaled 171,269 units, as against 162,823 in April and 167,567 in May, 1929. For the first five months period of this year the total was 651,766 units, as against 588,943 in the same period last year.

The following summary is based on returns received from 455 identical financing firms and is subject to revision wit hthe receipt of reports from additional firms:—

WHOLESALE FINANCING

1929	Volume in dollars
January	$ 35,889,941
February	47,919,535
March	61,097,083
April	74,714,226
May	72,098,629
Total (5 mos.)	$291,719,414
June	
July	
August	
September	
October	
November	
December	
Total (year)	
1930	
January	$ 52,363,467
February	61,163,496
March	76,573,760
April	84,228,709
May	82,029,398
Total (5 mos.)	$356,358,830

RETAIL FINANCING

Total

	Number of cars	Volume in dollars
1929—		
January	155,630	$73,166,768
sFebruary	189,183	90,489,411
March	302,672	141,076,601
April	378,790	171,931,720
May	398,561	183,580,808
Total (5 mos.)	1,424,836	660,245,308
June	384,520	178,983,835
July	388,747	180,205,492
August	347,144	162,894,966
September	298,286	138,717,971
October	276,292	126,247,679
November	211,805	94,932,292
December	170,399	80,088,696
Total (year)	3,502,029	1,622,316,239
1930—		
January	164,638	72,997,775
February	197,608	84,756,722
March	285,418	120,872,894
April	341,842	144,891,575
May	346,515	146,191,179
Total (5 mos.)	1,336,021	569,709,945

New Cars

	Number of cars	Volume in dollars
1929—		
January	78,288	$45,677,337
February	103,079	61,736,87?
March	165,898	95,639,213
April	204,949	116,811,926
May	212,239	125,096,943
Total (5 mos.)	764,453	448,962,292
June	203,632	121,842,467
July	211,296	126,005,223
August	183,921	111,664,809
September	158,021	94,240,101
October	132,187	80,745,596
November	97,724	58,596,676
December	74,085	48,846,672
Total (year)	1,825,339	1,089,903,836
1930—		
January	78,319	45,026,703
February	95,199	52,749,661
March	137,365	76,292,271
April	169,994	93,404,850
May	167,106	93,283,672
Total (5 mos.)	647,983	360,757,157

Used Cars

	Number of cars	Volume in dollars
1929—		
January	68,859	$20,734,372
February	76,480	24,595,774
March	121,194	37,815,473
April	154,843	47,248,843
May	167,567	50,830,658
Total (5 mos.)	588,943	181,225,120
June	164,023	50,205,848
July	162 451	49,077,845
August	149,413	45,652,348
September	127,429	39,310,095
October	135,158	41,783,894
November	103,950	32,340,123
December	89,969	28,574,295
Total (year)	1,521,336	468,169,568
1930—		
January	80,723	25,526,546
February	95,340	29,095,30?
March	141,611	41,474,940
April	162,823	48,460,620
May	171,269	49,805,204
Total (5 mos.)	651,766	194,361,710

Unclassified

	Number of cars	Volume in dollars
1929—		
January	8,483	$3,755,059
February	9,624	4,158,764
March	15,580	6,621,915
April	18,998	7,870,951
May	18,755	7,653,207
Total (5 mos.)	71,440	30,057,896
June	16,865	6,935,520
July	15,000	6,122,424
August	13,810	5,577,809
September	12,836	5,167,775
October	8,947	3,718,189
November	10,121	3,995,493
December	6,335	2,667,729
Total (year)	155,354	64,242,835
1930—		
January	5,596	2,444 526
February	7,069	2,911,761
March	6,442	3,106,583
April	9,023	3,025,90?
May	8,140	3,102,303
Total (5 mos.)	36,272	14,591,078

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

General Motors Retail Sales Exceed Production

(Continued from Page 1)

in continental United States, and total sales to dealers, including Canadian sales and overseas shipments:—

	UNITED STATES Sales to Consumers 1930	1929	Sales to Dealers 1930	1929	Total Sales to Dealers, including Canadian Sales and Overseas Shipments 1930	1929
January	74,167	73,989	94,458	95,441	106,509	127,580
February	88,742	110,148	110,904	141,222	126,196	175,148
March	123,781	166,942	118,081	176,510	135,930	220,391
April	142,004	173,201	132,365	176,634	150,661	227,718
May	131,817	169,034	136,169	175,873	147,483	220,277
June	97,318	154,437	87,595	163,704	97,440	200,754

These figures include sales of Chevrolet, Pontiac, Olds, Marquette, Oakland, Viking, Buick, La Salle and Cadillac passenger cars and trucks.

NEW TRUCK SALES IN SOUTH SET PACE

(Continued from Page 1)

the best showing, with 3,002 sales, as against 3,220 a year ago. The total for the three states was 15,929, as against 19,489 last year, off 18.2 per cent.

In New England and the East, where passenger car sales led the nation in comparison with a year ago, the truck sales were off to a greater extent than in most of the other sections, although the decline was not as great as in the passenger car registrations.

The total for the six New England states was 13,992, as against 16,150 a year ago, off 13.3 per cent., while in the six Eastern states the total was 43,459, as compared with 48,250, a loss of 9.9 per cent.

Thirteen states in various parts of the country actually showed increases in registrations over the corresponding period of last year, with the South accounting for four of the thirteen. The best record for any state was made by Mississippi, where sales jumped from 1,741 last year to 2,668 this year, while in Alabama another large increase took place, from 2,100 to 2,688. The other two Southern states to register increases were Virginia and Tennessee.

In New England Maine was the only state to show a gain, while in the East Maryland and West Virginia set up increases. New Hampshire in New England registered almost as many trucks as a year ago, while in the East New Jersey and Delaware were only slightly under last year.

In the South Florida and Kentucky sustained only slight losses.

In the Great Lakes states Minnesota showed a gain over last year, while Indiana almost broke even.

In the agricultural states of the Middle West South Dakota showed an increase, while Iowa almost equaled last year in sales.

In the Rocky Mountain area Colorado, Utah, Idaho and New Mexico showed gains over last year.

Following are the new commercial car registrations for the first five months of the current year, by states, arranged geographically, as compared with the corresponding period in 1929, with the percentage of loss for each division indicated:

NEW ENGLAND

	1930	1929	
Massachusetts	6,212	7,766	
Connecticut	2,714	3,176	
Maine	2,262	1,933	
New Hampshire	1,047	1,054	
Rhode Island	949	1,190	
Vermont	808	1,031	
Totals	13,992	16,150	—13.3%

EAST

	1930	1929	
New York	17,496	20,839	
Pennsylvania	13,080	14,502	
New Jersey	7,148	7,257	
Maryland	3,011	2,891	
West Virginia	2,096	2,089	
Delaware	628	672	
Totals	43,459	48,250	—9.9%

SOUTH

	1930	1929	
Texas	10,283	12,073	
Missouri	8,841	9,557	
Virginia	4,839	4,687	
North Carolina	2,883	4,074	
Florida	2,823	2,974	
Alabama	2,688	2,100	
Mississippi	2,668	1,741	
Georgia	2,590	2,902	
Tennessee	2,545	2,349	
Kentucky	2,533	2,540	
Louisiana	2,201	2,496	
Arkansas	1,783	2,776	
South Carolina	1,743	2,084	
D. Columbia	626	897	
Totals	49,045	53,249	—7.9%

GREAT LAKES

	1930	1929	
Illinois	9,067	12,158	
Ohio	7,118	7,441	
Michigan	6,137	7,091	
Indiana	5,116	5,502	
Wisconsin	4,642	4,404	
Minnesota	3,519	2,973	
Totals	45,688	52,994	—13.9%

MIDDLE WEST

	1930	1929	
Iowa	4,674	4,708	
Oklahoma	3,962	4,988	
Kansas	3,759	4,109	
Nebraska	3,314	3,575	
North Dakota	1,564	1,710	
South Dakota	1,545	1,530	
Totals	18,818	20,620	—8.7%

ROCKY MOUNTAINS

	1930	1929	
Colorado	2,475	2,177	
Montana	1,232	2,096	
Utah	999	833	
Arizona	950	1,360	
Idaho	800	570	
New Mexico	732	612	
Wyoming	443	500	
Nevada	239	428	
Totals	7,870	8,576	—8.2%

PACIFIC COAST

	1930	1929	
California	11,163	13,922	
Washington	3,002	3,220	
Oregon	1,764	2,347	
Totals	15,929	19,489	—18.2%

JUNE NEW CAR SALES 29% UNDER YEAR AGO

(Continued from Page 1)

preceding month. North Carolina showed a gain over May.

Registrations by the various makes of cars have been received from all the states of this group except North Carolina, from which only the total was obtained.

In the remaining states, Ford registrations in June were 10,438, as compared with 10,985 in the corresponding month of last year, a slight loss. Chevrolet registrations amounted to 5,393, as compared with 5,845 a year ago, also a slight decline.

Following are the June registrations now available, as compared with June, 1929, and May, 1930:—

	June, 1930	June, 1929	May, 1930
Illinois	16,339	23,208	23,046
North Carolina	3,644	5,894	3,315
Maryland	3,747	4,912	4,361
North Dakota	1,954	2,967	1,998
Delaware	798	1,045	911
D. of C.	2,236	2,429	2,274
Totals	28,718	40,455	35,905

W. J. AUSTIN SEES GENERAL IMPROVEMENT IN FACTORY BUILDING

Cleveland, July 17.—Improvement in building activities, usually a forerunner of general business recovery, is getting under way in many sections of the country, according to W. J. Austin, president of the Austin Company, engineers and builders. Mr. Austin discussed the business outlook on the eve of his departure for Russia, where his company is directing a force of 9,000 Russian workmen in building a large automobile plant and industrial city near Nizhni Novgorod.

"Inquiries received and contracts being placed at our various branches throughout the United States indicate increasing interest in building on the part of industry," said Mr. Austin. "Many executives recognize that with money rates low and building costs less than at any time in some years this is a most favorable time to construct new plants or to modernize their present plants in preparation for business recovery.

"We have been particularly impressed by the amount of aviation work, both for airports and aircraft factories and hangars that we are now doing. Last year aviation was one of the first industries to go into recession, and it now seems to be one of the first to revive."

SPARKS *from* DETROIT

Buick Stars at Flint

* * *

Ned Shattuck "Steps On It"

* * *

Motor Memorial

* * *

STAR salesmen and sales executives who sell Buick automobiles in all sections of the country are having a wonderful time in Flint, Mich., and at the General Motors Proving Ground at Milford. The men are having their outing as a result of their great sales success in a recent contest staged by the company. They number about 175.

At a luncheon to the salesmen, Charles F. Kettering, vice-president of the General Motors Research Corporation, made some pertinent remarks and also disclosed just how his organization goes about its research work. Among other things, he said:

"In research, we simply start in to find out what is wrong with something and then fix it.

"Our research here is divided into two classes. One class is made up of the projects which are present-day problems—ones that we have to solve right now or in the near future. These make up about 80 per cent. of our expenditures. Another group, which makes up the remaining 20 per cent. are studies in advance of what we are doing today. These problems are based on some of the things we learn from our present-day problems, but looking to the future, and others that have to do with entirely new developments in automotives."

* * *

E. W. (NED) SHATTUCK, assistant sales manager of Durant Motors, returned to the home office of his company the other day, after a strenuous trip.

Leaving his home near Bristol, N. H., at 4 o'clock in the morning (really an unusually early hour for a representative of the home office of an automobile company to be up and about, unless this was the time of his return from an important "conference" with a distributor), Mr. Shattuck made calls at various cities across Vermont and New York states, and pulled up to the Hotel Cleveland in Cleveland the following morning at 12.26 a. m., with a record of 631 miles on his speedometer, and with his usual cheerful, sunny disposition even improved by the drive.

* * *

LANSING is paying tribute to the automobile. Just the other night Lansing city council voted to dedicate a plot of city-owned property as a memorial to one of the first automobiles. This property, under the resolution, is to be dedicated to R. E. Olds, who is known as the father of the automobile, and to Lansing as the cradle of the motor car industry.

The Chamber of Commerce of that city is behind the project and plans are being made to hold a celebration at which all pioneers of the automobile industry and many nationally known figures are to be invited.

The work on the memorial park will not be completed for at least a year.

ARMSTRONG TO MANAGE CLEGG LOCK WASHER CO.

Chicago, July 17.—C. H. Armstrong has been appointed general manager of the Clegg Lock Washer Company. He will have complete charge of production, marketing and administration. Mr. Armstrong was formerly director of trade extension of the Textile Bag Manufacturers Association, and at one time was assistant to the president of the Duplex Printing Press Company of Battle Creek, Mich. During the war Mr. Armstrong was a captain of engineers with the North Russian Expeditionary Force. He has been a consulting engineer and an engineering sales counsel.

"The Clegg Lock Washer is a patented positive action washer for use where any lock washer is needed or desirable," says G. H. Anderson, president of the company. "We have spent two years in perfecting this patented washer which we call the 'Ded-Lok' washer, and in constructing presses and heat-treating equipment for its manufacture. We are now ready for quantity manufacture and intensive selling." The factory and offices of the Clegg Lock Washer Company are at 4725 West Lake St.

NEW STUDEBAKER MODELS ATTRACT LARGE CROWDS

South Bend, Ind., July 17.—Based on reports from dealers, it is estimated that between 875,000 and 900,000 persons visited Studebaker showrooms on July 10 to view the new free-wheeling models, the Studebaker Corporation announced here today.

13 AUTOMOTIVE PLANTS IN AMERICAN FAIR

Atlantic City, N. J., July 17.—Thirteen automotive manufacturing concerns are exhibiting at the American Fair at the City Auditorium here today. They are among the several hundred industries represented. The fair will continue to August 27.

New Jersey is well represented in the fair, particularly by a large group of manufacturers from the Trenton district, who are taking up one-tenth of the floor space.

The automotive firms represented are: Aluminum Company of America, Pittsburgh; Black & Decker, Baltimore; Overhead Door Company, Atlantic City; Acme Rubber Company, Trenton; Circle F Manufacturing Company, Trenton; Combination Rubber Company, Trenton; Hamilton Rubber Manufacturing Company, Trenton; Murray Rubber Company, Trenton; Roller Bearing Company of America, Trenton; Joseph Stokes Rubber Company, Trenton; Trumbull Electric Manufacturing Company, Trenton; Westinghouse Lamp Company, Trenton, and Woven Steel Hose and Rubber Company, Trenton.

MILLION AND A HALF PERSONS VIEW AUSTIN

Butler, Pa., July 17.—The American Austin Car Company estimates, on the basis of returns received from its dealers, that approximately 1,500,000 persons have viewed the new American Austin car since it was introduced at the end of June.

√ The Trade enthusiastically checks and approves the new Factory-Dealer platform of 14 points

Comments like these prove Peerless policies to be fully in accord with the dealer mind

PROBABLY never before has any statement of factory policy had such widespread and wholehearted endorsement as has the Peerless Factory-Dealer platform of fourteen points, presented in this publication three weeks ago . . . Not guarded words but out and out statements of commendation and approval. Words like these:

"Iowa dealers deserve to have their manufacturers meet them halfway with such a franchise contract and we hope they will do it without further delay."

• • •

"Truly such a program takes automobile retailing from the category of a gamble and places it on a true merchandising basis."

• • •

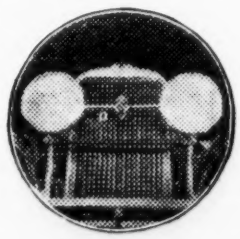
"The writer feels sure that our association will adopt a resolution favoring your platform which we will send to the N. A. D. A."

• • •

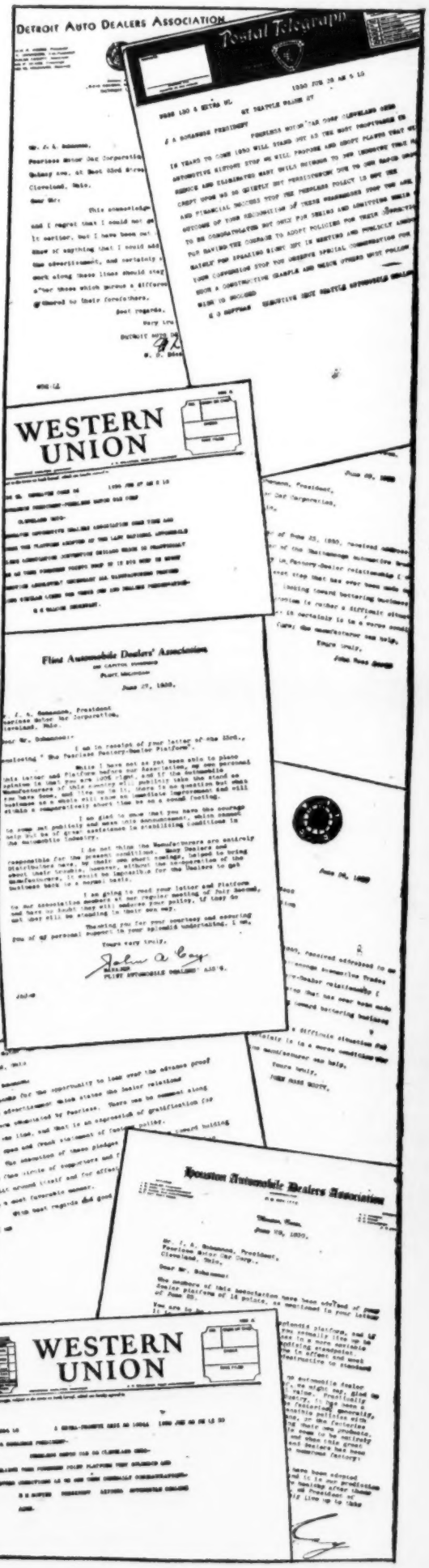
"You deserve special commendation for setting such a constructive example and one which others must follow"

—and so it goes through hundreds of letters and wires—proving Peerless knows present day conditions and is making its policies to fit these conditions.

Complete Outline of the Peerless Factory-Dealer platform (14 points) will be sent to interested dealers on request.



THE NEW
PEERLESS
"All that the name implies"



PEERLESS MOTOR CAR CORPORATION • CLEVELAND, OHIO

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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Dealer Stocks

FOR several months The Automotive Daily News has been conducting nationwide surveys through its correspondents in all important cities and towns, covering the vitally important matter of stocks in dealers' hands. The results of these surveys convinced us, as early as March, that automotive merchants were making definite headway in clearing up stocks on hand and were reducing the total number of new cars in their possession to a figure below anything that has existed in a good many years.

It was eminently pleasing to us to have confirmation of our dealer stock surveys from the official source of such information, the National Automobile Chamber of Commerce. The N. A. C. C. recently completed a compilation, showing that on May 1, 1930, there were a total of 438,000 vehicle units in dealers' hands throughout the country. On June 1 this total had shrunk to 417,000 units and at the present time it is probably well under the 400,000 mark. This survey was further confirmed by the Dow, Jones news agency, which conducted a private investigation through its correspondents and came to the same conclusion that this newspaper had already reached, that dealer stocks are lower than at any time in many years.

In the meantime, while dealer stocks have been steadily sinking, the production and sales curves have been continually drawing closer and closer together. It is extremely probable that when figures are released covering production by the manufacturers in July, and sales figures for that month become available, the production curve will have declined below the one indicating sales. If this is so, we shall have a condition that has not existed in the automotive industry in many, many years.

All of this means that if business in general takes a turn for the better with the coming of fall, it is quite possible that an actual shortage of cars for delivery may develop.

Thrift and Depression

IN the psychology of depression there are a good many twists that the average person would not expect to find.

We have pointed out before, that during the past months when business has been, well, not so good for most people, deposits in savings banks have increased by nearly a billion dollars. During the same time insurance policies have registered a gain of 1.8 per cent. over the same period of the tumultuously prosperous 1929. The bond market, which in the final analysis represents a form of thrift or saving, has been demonstrating its ability to absorb increasingly large volume of good flotations.

It is perfectly evident that the average man who still has a job has simply been tucking away all that he could of his superfluity, instead of investing it in commodities desired, perhaps, but possible to get along temporarily without.

By the same token, in times when business is not so good, it might be assumed that advertising would increase. Logically it should. Advertising is a means of selling goods, and when goods are hard to sell, producers and merchants should increase advertising to lift sales. But do they? Ask any advertising solicitor. He knows.

The truth is that underlying any business depression, there is fear, fear that things are going to be still worse. The man who still has a job fears that business will become so bad that he will lose his position. The man who has already lost his job fears that it is going to be a long time before he gets another. The tendency to save every possible cent against some impending need, dominates everything. Buying decreases, employment stays "off" and until the fundamental fear is forgotten and people begin to spend money for present necessities, depression continues.

There are signs that the fear which has dominated us for many months is beginning to lift. When it finally does, the depression will go with it.

TRANSUE-WILLIAMS CLOSES PLANT FOR VACATION

Alliance, O., July 17.—Factories of the Transue-Williams Steel Forging Company are down for a two weeks' vacation. During the suspension the factory will ship parts on orders from stock, but there will be no manufacturing, according to H. G. Sharp, general manager.

New Dealers Appointed

CALIFORNIA

Graham-Paige—Ventura Motor Company, Ventura.

CANADA

Marmon - Roosevelt — Waterloo County Motor Sales, Inc., Kitchener, Ontario.

ILLINOIS

Durant—F. M. & D. Sales and Service Company, Mount Olive.

Graham-Paige—J. Del Murphy, Libertyville.

IOWA

Durant—Tischauser Motor Company, Dubuque; L. F. Yender, Carroll; O. J. Roberts Motor Company, Knoxville.

KANSAS

Nash—R. B. Phelps, Oakley; H. F. Tongish, McDonald.

Peerless—Peerless-Marmon Motor Company, Winfield.

Graham-Paige—Holuba Motor Company, Manhattan.

MAINE

Graham-Paige—Main Street Garage, Fryeburg.

MARYLAND

Durant—College Park Auto Place, College Park.

MASSACHUSETTS

Peerless—Ray Augur, Springfield.

Durant—Eugene O. Lofland, Belchertown.

In the Bus Field

Fort Worth, Tex., July 17.—Schedules of the Pickwick Greyhound Lines of Texas have been changed to permit pick-up and discharge of passengers at intermediate points on the Fort Worth to Tulsa line. A fare of $3.30 from here to Durant, Okla., was announced at the same time. Reduced fares have been offered to Pacific Coast and Eastern cities.

Bayonne, N. J., July 17.—The Preis Bus Corporation has been chartered here and authorized to capitalize with 1,000 shares no par. Hermis Preis, James Cameron and Rose Tulbowitz, Bayonne, are the directors.

Toledo, O., July 17.—Work has been begun by the Bryan Specialty Company, Bryan, O., on six school bus bodies for the Monroe Township Consolidated School, Van Wert county. The contract was handled through the Henry Motor Sales, Continental, O., which is furnishing the Ford truck chassis for the buses. All six will be delivered to the Henry Sales by August 15. Each is to cost $1,375, a total contract price of $8,250.

Raleigh, N. C., July 17.—A building permit has been issued for the addition of a waiting room to the Union Bus Station to cost approximately $1,500.

COMING EVENTS

AUGUST

26-28—**Chicago, Ill.** Society of Automotive Engineers aeronautic meeting in conjunction with National Air Races.

SEPTEMBER

22-26—**Chicago, Ill.** American Society for Steel Treating meeting at Stevens Hotel.

29-Oct. 4—**Pittsburgh, Pa.** National Safety Council Annual Safety Congress.

OCTOBER

2-12—**Paris, France.** Automobile Salon.

6-11—**Washington, D. C.** Sixth International Road Congress.

6-11—**Washington, D. C.** American Roadbuilders' Association Convention.

8- 9—**Detroit, Mich.** Society of Automotive Engineers production meeting at Book-Cadillac Hotel.

22-24—**Pittsburgh, Pa.** Society of Automotive Engineers' transportation meeting.

16-25—**London, England.** Olympia Motor Show.

NOVEMBER

6-16—**Berlin, Germany.** International Automobile Show.

8-15—**Chicago, Ill.** Automobile Salon at Drake Hotel.

10-14—**Cleveland, O.** Motor and Equipment Association Show.

17-21—**Cleveland, O.** National Standard Parts Association Show.

30-Dec. 6—**New York.** Automobile Salon at Hotel Commodore.

DECEMBER

6-17—**Brussels, Belgium.** Automobile Exhibition.

JANUARY

3-10—**New York.** National Automobile Show.

24-31—**Chicago, Ill.** National Automobile Show.

Deans of the Dealer World

J. W. GOLDSMITH, JR., president of the Goldsmith-Becker Company, is the oldest automobile dealer in Atlanta, Ga., having been in the business continuously for a period of twenty-one years.

But there are many facts other than this which make him an interesting personality and his business a successful business.

Born in Atlanta, Mr. Goldsmith was educated in the public schools of the city and later received the degree of bachelor of science in engineering from the University of Georgia, graduating with the class of 1905.

Returning to Atlanta, he was engaged in the insurance business for a couple of years. Then, seeing the opportunities in the new automotive field, he secured the agency for the Hudson-Essex Company.

That was in 1909—and for twenty-one consecutive years, Mr. Goldsmith has handled only the Hudson-Essex line.

During that time, he has seen the automobile industry in Atlanta grow from three firms—of which his was one—to a business with hundreds of firms engaged in the marketing of cars, parts and equipment.

And at the same time, no firm in Atlanta has enjoyed a steadier development.

The small showrooms which Mr. Goldsmith established at 46 North Ave. have grown into the largest establishment in the city devoted to the use of one automobile firm, a building four stories in height and containing 80,000 square feet of floor space.

The number of people employed has grown from a total of three to more than 100 in the sales and service departments of the company.

Along this line, it might be mentioned that labor turnover is practically nil at the Goldsmith-Becker establishment.

J. K. Andrews, service manager of the company, is one of the original three employees, having served for twenty-one years. Mr. Rambo, secretary of the firm, and Ed. Byrns, senior salesman, have been with Goldsmith and Becker for twenty years.

While of the 100 other workers employed, more than 60 per cent. have been in the employ of the company for ten years or longer.

It takes personality—plus a genius for picking the right men—to build up such an organization. Yet these are the two cardinal features possessed by Mr. Goldsmith He is probably the best-liked automobile man in the city.

During the first year of his operations Mr. Goldsmith considered that he did very well indeed. He sold twenty-five cars. Today the Goldsmith-Becker Company averages the sale of 3,000 cars a year in Atlanta and its surrounding territory.

Mr. Goldsmith operated under his own name until 1920, when C. H. Becker became associated with him and the firm's name was changed to the Goldsmith-Becker Company. Mr. Becker, it might be added, is a graduate of the University of Michigan, and was for a number of years assistant sales manager of the Chalmers Motor Company, in Detroit.

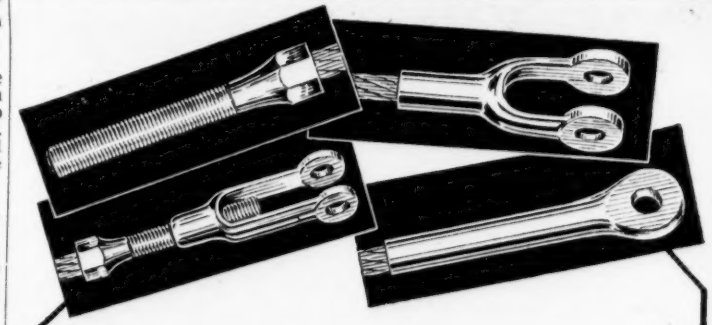
The present building, with its 80,000 square feet of floor space, was built for the company in 1927.

ITALIAN GOVERNMENT CONFIRMS FORD'S PLANS

Rome, July 17.—The Italian government today confirmed previous reports that the Ford Motor Company and the Isotta Fraschini Automobile Company have signed a convention providing for establishment of several factories in Italy for the manufacture of automobiles. The Italian Commercial Bank participated in the transaction, which will involve the investment of 100,000,000 lire ($5,237,500).

REVISED RESPONSIBILITY ACT IN EFFECT IN N. J.

Trenton, N. J., July 17.—Gov. Larson has signed the new law that removes minor infractions from the statute requiring motorists to show proof of financial responsibility after figuring in automobile accidents, and it is effective immediately. The law as changed now only relates to drunken and reckless driving, hit-and-run drivers and manslaughter cases.



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Tru-Loc Fittings can be adapted to practically any cable use. They are now being used in hundreds of different applications.

As strong as the cable itself

The cold flowing process of gripping the fitting onto the cable is safe and efficient.

We will be glad to work with you—to simplify your cable applications and make them absolutely dependable.

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Executive Offices:
New York Central Building
230 Park Avenue
New York, N. Y.

Earnings of Car Makers Gain in Second Quarter

NEW YORK, July 17.—Reports covering operations of automobile manufacturers during the second quarter of the current year from an earnings standpoint will begin to appear shortly and interest of the industry is turning in that direction. While it is already well known how the various companies fared in regard to production, it is now to be seen how successful the manufacturers have been in reaping profits from their reduced production schedules.

It is estimated in financial circles, from the best information available, that nearly all of the larger motor vehicle builders earned more money in the second quarter of the year than in the first three months.

It is interesting to note in connection with production that the output in the second quarter of this year was 19 per cent. better than in the first, that being the increase shown in the second three months period of last year over the first. The normal gain of the second quarter over the first is estimated at around 15 per cent.

The difference between the 19 per cent. gain of last year and the similar one of this year is the fact that in 1929 this increase was piled on top of a higher output, with production going away ahead of retail sales, while this year the 19 per cent. increase was made while the manufacturers were at the same time holding their schedules to the actual retail demand and avoiding any dealer surplus whatever. Thus, the end of the first half of 1930 found dealers in much better shape that a year ago, with dealer stocks about 25 per cent. below a year ago.

The decline in production in the first half was 31 per cent., but earnings in most cases would normally fall off to a greater extent than the production. This is due to the fact that the industry is of the decreasing cost type, with the per unit cost declining as the output grows.

Second quarter earnings reports have already been made by Auburn and Nash, the fiscal years of which begin December 1. Both reported increases in earnings in the second quarters of their years over the first. Nash showed 71 cents, as against 65 cents, while Auburn earned $4.25 for the second quarter, as against 55 cents in the first quarter.

General Motors, in which there is great interest, is expected to show earnings of around $1.25 a share, as compared with 98 cents for the first quarter. Wide diversification by General Motors is helping to hold its earnings at a higher level that its decline in automobile production would indicate. Earnings of $1.25 in the second quarter would compare with $2.01 in the corresponding period of last year.

Studebaker is expected to show per share earnings for the second three months period above the 62 cents reported for the first quarter but is not expected to approach the $2.47 earned in the corresponding period of last year. Pierce-Arrow is contributing heavily to Studebaker's earnings, this subsidiary having been one of the few companies to produce and sell more cars in the first six months of this year than in the first half of 1929.

After earning only 4 cents a share in the first quarter, it is doubtful whether Chrysler was able to show profit in the first six months sufficient to cover the $1.50 dividend on the capital stock for the period. The company will show earnings for the quarter considerably better than the first and this company is one of the group that may expect high earnings in the third quarter.

L. A. Miller, president of Willys-Overland Company, recently stated that his concern would show a small profit for the second quarter of the year, as compared with a loss in the first period. On the basis of production, Graham-Paige is expected to show a smaller loss than in the first quarter and may return a profit.

Hudson was one of the few companies to earn its dividend in the first quarter, with a net profit of $1.45 a share, as against dividend requirements of $1.25. Hudson, however, built up a supply of cars for its dealers during the second quarter and it is likely that the second quarter's net will be smaller than that for the first.

Reo, it is believed, will show another loss in the second quarter, after having shown a small deficit in the opening period.

While these earnings may, for the most part, seem unfavorable, it is pointed out by observers that most of the leading companies are showing substantial profits and that they have made these profits without forcing production and putting cars off on dealers beyond their needs. This is the most encouraging feature of the situation at the present time and for this reason the automotive industry undoubtedly will be the first to lead the way back to normal business for the entire industrial structure of the nation, as it has in the past after depressions similar to the one of the past year.

OTHER FINANCIAL NEWS

TIMKEN ROLLER BEARING

The Timken Roller Bearing Company reports for the six months ended June 30, 1930, net profit of $6,120,023 after depreciation, Federal taxes, etc., equivalent to $2.54 a share on 2,407,824 no-par shares of stock. This compares with $3,013,364 after above charges, equal to $1.25 a share.

Net profit for the June quarter amounted to $8,449,198 or $3.51 a share in first half of 1929, comparing with $3,106,659, or $1.29 a share, in preceding quarter, and $4,184,973, or $1.74 a share, in June quarter of previous year.

CITIES SERVICE

Cities Service Company's net earnings for the twelve months ended June 30 were $54,460,129, a new high record for any twelve months by the company, and an increase of more than $17,000,000, or 46.31 per cent., over net earnings for the year ended June 30, 1929. Net earnings for June were $5,059,634, an increase of 48.65 per cent. over June, 1929.

Net earnings of Cities Service for the twelve months were 7.84 times interest and discount on its debentures. Net to stocks and reserves amounted to $47,517,931, or 6.62 times preferred stock dividends. This compares with $31,439,277, or 4.64 times for the year ended June 30, 1929. Net to common stock and reserves amounted to $40,338,435, or $1.44 a share on the average number of shares outstanding, an increase of 63.51 per cent. over the previous year, when net to common stock and reserves amounted to $1.13 a share.

CHECKER CAB

At the annual meeting of the Checker Cab Manufacturing Corporation, R. E. Oakland, John H. Tuttle and L. G. Miller were elected directors for a full term, and F. L. Haveron was elected to fill the unexpired term of E. P. Gillespie, resigned. New directors for full term succeed to the vacancies created by the expiration of the terms of F. L. Haveron and N. B. Henrotin, as well as a former vacancy on the board.

AMERICAN-LA FRANCE

New York, July 17.— American-La France and Foamite Company reports for quarter ended June 30, 1930, net loss of $45,282 after interest charges, comparing with loss of $66,322 in preceding quarter and profit of $126,600 in June quarter of 1929.

For six months ended June net loss totaled $111,605, after interest charges, comparing with profit of $79,338 in first half of previous year.

TRIPLEX GLASS WINS PATENT SUIT DECISION

Philadelphia, July 17.—The United States District Court of Appeals handed down a decision sustaining tne validity of a patent on nonshatterable glass for automobile windshields owned by the Triplex Safety Glass Company of North America. The decision was given in a suit against the Duplate Corporation, formerly the Pittsburgh Safety Glass Company, which was charged by the Triplex company with infringement, and upholds a ruling by the Federal Court of Pittsburgh in favor of the Triplex company.

Annual report of E. I. du Pont de Nemours Company for 1929 shows that the Du Pont Company owns a 50 per cent. interest in the Duplate Corporation.

TRUCK AND TRACTOR SHIPMENTS LOWER

Washington, July 17.—During June, ninety-five electric industrial trucks and tractors were shipped by the ten leading manufacturers, Commerce Department reports. This compares with 144 in May, and 201 in June, 1929. Total shipments during first six months were 721 tractors and trucks, of which 627 were for domestic use and 94 exported, compared with a total of 1,103 in the 1929 period, of which 1,033 were domestic and 70 for export.

American Chain Earnings Estimated at Above 1929

NEW YORK, N. Y., July 17.—Reflecting stability in earning power achieved through extensive diversification of operations, preliminary estimates indicate that net profits of American Chain Company for the six months ended June 30, last, after all taxes and charges, totaled close to $1,200,000, equal, after dividends on 7 per cent. preferred stock, to around $3.30 a share on the 250,221 common shares outstanding.

Net profits in the first six months of 1929 were $1,034,029, of $2.63 a share on 250,033 common shares, after preferred dividends, indicating a gain of 15 per cent. for the current year.

Earnings during the first half of 1930 likewise compare with the net loss of $354,428 reported for the first six months of 1928, when company was facing heavy development charges in connection with expansion program, and exceed by around 100 per cent. the first half income results of the preceding four years, when profits for the period ranged from $514,000 to $625,000. The current year's profits were bettered only in 1923, when an abnormally large volume of automobile chain business carried net income before taxes to a high mark of $1,718,403.

With earnings for the common stock more than double the half-year dividend requirement of $1.50 the high profit rate during 1930 in the face of depressed business conditions indicates the benefits achieved through company's program of expansion carried out during recent years. Although operations in the general lines of chain, iron and steel products declined moderately during the period in sympathy with the low level of general business activity, this decrease was more than offset by improved sales of automobile tire chains, by increased activity in company's wire rope divisions, and by satisfactory volume in other departments.

American Chain Company normally earns the larger portion of its annual profits in the second six months of the year. During the last six years an average of 75 per cent. of total yearly earnings has been reported in the second half, with the proportion at no time falling below 65 per cent.

Business currently on books assures satisfactory operations during July and August, with rate of activity during the balance of the year likely to vary with developments in the general industrial field. In the final half of 1929, net profits from operations totaled $1,970,546, or $6.37 a common share after preferred dividends.

Profits during the six months just closed were aided by gains in company's wire rope divisions. Acquisition of Hazard Wire Rope Company in January of this year doubled production capacity for these products which formerly were manufactured entirely by the American Cable Company, a subsidiary. Consolidation of this new unit with American Cable Company has permitted extensive operating economies which, together with new business acquired, resulted in a substantial increase in sales and profits from these subsidiaries.

In addition to improved tire chain sales, company's automotive business during the first half was maintained at a satisfactory rate, due to large contracts with leading producers whose output has not declined as heavily as the balance of the industry. In this field, American Chain manufactures automobile bumpers for which company controls patents on all types in general use, emergency brakes for trucks used by approximately seventy manufacturers in the United States, and a tube control for mechanical brakes which has found a growing market since its introduction late in 1929.

New, Faster Schedule

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THE SUNSHINE SPECIAL

Leave St. Louis at 6:30 pm daily, arrive San Antonio 8:30 pm next day, Monterrey 8:25 am 2nd day and Mexico City 7:35 am 3rd day (instead of 5:20 pm as at present).

Through drawing room compartment sleepers from St. Louis to Mexico City. Sun Room Lounge cars St. Louis to San Antonio. Cafe Club cars San Antonio to Mexico City.

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Production--Engineering--Factory

Sulphur in Motor Fuel

By A. J. KRAEMER [2]

DURING the past several years a great deal of discussion has centered around the question of the permissible limit of sulphur content in fuels for automotive and aviation motors. Under certain conditions of operation, sulphur in motor fuels causes the formation of corrosive substances which attack bearings, wrist pins and other parts of engines. On the other hand, in making gasoline from certain stocks, the gasoline fraction normally contains a relatively large proportion of sulphur compounds. By the generally used processes of reducing the sulphur content, a significant part of the gasoline fraction is lost as motor fuel, and added expenses are entailed for chemicals, labor and other process costs. This condition has been an economic burden to some refiners of high-sulphur crudes. In some instances the treating losses have been rather severe and the treating costs relatively high, but the data presented in this paper indicate that the reduction of sulphur content of motor fuel is a problem to a relatively small number of refiners and of little or no concern to the remainder; in fact, more than 90 per cent. of the 153 samples analyzed passed the Federal specification requirement, which limits the sulphur content to 0.10 per cent.[3]

This report is based upon the results of an examination for sulphur content, Doctor test, copper strip corrosion, and color of the samples collected during January, 1930, for the twenty-first semi-annual gasoline survey of the Bureau of Mines. The results of the gravity and distillation tests of the survey were published as Report of Investigations [12],995. The numbering of the samples given in this report is the same as in Report of Investigations 2,995; for example, No. 25 of this report is the same sample as No. 25 of Report of Investigations 2,995.

ACKNOWLEDGMENTS

The laboratory analyses reported in this paper were made by E. L. Garton and O. C. Blade, junior chemists, under the direction of E. C. Lane, assistant petroleum chemist of the Petroleum Experiment Station of the Bureau of Mines at Bartlesville, Okla.

The effect of sulphur content of motor fuels on automobile engines has been discussed by Diggs[5] and by Mougey.[6] The economic aspects of the tack of the refiner in reducing sulphur content are presented by Morrell and Egloff[7] and Egloff and Lowry.[8] Additional comments on these phases of the question are found in a review of refinery technology by Miller[9] and in two editorials in Industrial and Engineering Chemistry.[10]

Some of these commentors discuss the effect of high-sulphur gasoline on automobile engines, emphasizing that with moderately high-sulphur contents the ill effects are obtained only under certain conditions of operation and climate; others deprecate the economic loss entailed by the necessity of reducing sulphur content to meet specification requirements. Mougey[6] contrasts the enormous investment in automobiles by the American public with the relatively small estimated saving in petroleum refining which would accrue as a result of an increase in the tolerance for sulphur in gasoline.

More recently it has been contended by some refiners that in treating to reduce sulphur content the anti-knock rating of the gasoline is reduced, and also that some stocks which would readily produce good gasoline with a high anti-knock rating, but with high sulphur content, are not now being used to produce gasoline, but, on the other hand, are being diverted to other and presumably economically inferior uses. In fact, some refiners consider that the increased anti-knock rating that is obtained when a gasoline is not treated solely to reduce sulphur content is preferable to low sulphur content.

Detailed discussion of these economic and technologic aspects of the problem is beyond the scope of this paper and no opinion is expressed in regard to what should be the maximum sulphur content of motor fuel. The Bureau of Mines has published a report of a study of the sulphur content of the motor fuels collected in the gasoline survey of July, 1927, [11] and the present report is a sequel to the previous study.

Tabular Data

The detailed results of the examination of the motor fuels included in this study are given in Table 1, showing physical and chemical data for samples from different cities. The distribution of the samples according to sulphur content is shown in Table 2.

Sulphur.—Of the 158 samples collected in the January, 1930, survey, five samples were too small to permit a determination of sulphur content. Of the 153 samples for which results are reported, 140, or 91.5 per cent., had 0.10 per cent. of sulphur or less and therefore compiled with Federal specifications for motor fuel, which permit a maximum sulphur content of 0.10 per cent. In 131 samples, or 85.6 per cent, the sulphur content was 0.08 or less. In only thirteen samples, or 8.5 per cent. of the total number, the sulphur content was above the limit set by Federal specifications. This compares with 5.4 per cent. containing over 0.10 per cent. sulphur in the survey of July, 1927.

If a refiner is confronted with the necessity of reducing the sulphur in his gasoline in order to meet trade requirements, it is logical to expect that he will reduce the content only to a point that will allow a small margin of safety. For example, if the limit of the tolerance for sulphur in gasoline is 0.10 per cent., the refiner is not likely to reduce below 0.08 per cent. Therefore it is logical to assume also that refiners who are marketing gasoline with a sulphur content of 0.08 per cent. or less did not make any special effort to reduce the sulphur content of their fuel and that the sulphur content of the marketed fuel is the sulphur content which resulted from the normal routine refining of the raw material which the refiner was using. As stated above, 85.6 per cent. of the samples analyzed in this survey had 0.08 per cent. sulphur or less, and it may be assumed that few, if any, of these motor fuels were treated especially to reduce sulphur. In other words, the reduction of sulphur content was not a problem with the refiners of these fuels. In regard to the nine samples, or 5.9 per cent. of the total number, that had 0.09 per cent. or 0.10 sulphur, it may be assumed that some of them did not require extra treatment to attain their sulphur content; the balance were successfully treated to reduce sulphur content. In other words, between 85.6 per cent. and 91.5 per cent. of the samples did not constitute a problem in reduction of sulphur content.

The remaining thirteen samples, or 8.5 per cent., that had more than 0.10 per cent. of sulphur may or may not have been specially treated to reduce sulphur content, but at any rate the treatment was not successful in reducing the sulphur content to the maximum permitted by Federal specification.

Doctor Test—Twenty-eight samples, or 17.7 per cent. of the total number, were positive to the Doctor test. This number includes four of the five samples for which the sulphur content was not determined and three of the thirteen samples which had more than 0.10 per cent. of sulphur. In other words, twenty-one of the 140 samples, or 15.0 per cent., that had 0.10 per cent. of sulphur or less were positive to the Doctor test, and seven of the remaining eighteen samples, or 38.8 per cent., of those that had more than 0.10 per cent. of sulphur, or for which the sulphur content was not determined, were positive to the Doctor test. This result indicates a closer correlation between sulphur content and Doctor test than was shown by the samples in the survey of July, 1927. However, a study of individual instances corroborates the general conclusion that Doctor test and sulphur content do not run parallel. For example, sample 103 from St. Louis was positive to the Doctor test and had only 0.01 per cent. sulphur, whereas sample 96 from St. Louis, with 0.16 per cent. sulphur, and sample 149 from San Francisco with 0.18 per cent. sulphur, were negative to the Doctor test. A number of similar instances can be found through Table 1.

Corrosion Test—Only one sample, No. 71 from Chicago, is reported as showing corrosion. This is one of the samples for which sulphur was not determined because of an insufficient quantity of sample. The interpretation of the result of the corrosion test is dependent upon the judgment of the tester, and considerable difference of opinion is frequently encountered in the interpretation of the result. However, the fact that only one of 158 samples was reported as corroding a polished strip of copper when immersed for three hours in the sample at 122 degrees Fahrenheit speaks well for the motor fuels sampled in this survey.

Color—An interesting disclosure of this survey is that 56 of the 158 samples, or 35.5 per cent., were artificially colored. This tendency on the part of marketers of motor fuels toward making their product distinctive in appearance has been growing during the past several years.

CONCLUSION

The results of this survey of the sulphur content of typical motor fuels, as in the one conducted in 1927, indicate that representative motor fuels now being sold in the United States contain relatively small proportions of sulphur. As compared with the survey made in July, 1927, a larger proportion of the total number of samples contain more than 0.10 per cent. of sulphur. However, more than 90 per cent. of the samples analyzed had 0.10 per cent. sulphur or less, and 72.5 per cent. had 0.06 per cent. sulphur or less. These motor fuels of low sulphur content are found in every city in which samples were taken, and it appears that so long as conditions remain substantially as at present, no difficulty should be experienced in obtaining gasoline under a specification requiring that the sulphur content shall not be more than 0.10 per cent.

[1] "Reprinted from United States Bureau of Mines Report of Investigations 3026."

[2] Senior refinery engineer, United States Bureau of Mines, Petroleum Experiment Station, Bartlesville, Okla.

[3] United States Bureau of Mines, United States Government Master Specification for Lubricants and Liquid Fuels and Methods for Sampling and Testing, Federal Specifications Board, Specification No. 2d, Technical Paper 323B, 1927, 121 pp. Obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C., price 15 cents.

[4] Lane, E. C., Garton, E. L., and Blade, O. C., Twenty-first Semi-annual Gasoline Survey. Report of Investigations 2995, Bureau of Mines, March, 1930, 12 pp.

[5] Diggs, S. H., Effect of Sulphur in Gasoline on Wrist-pin Corrosion in Automobiles. Ind. Eng. Chem., Vol. 20, January, 1928, pp. 16-17.

[6] Mougey, H. C., Sulphur in Gasoline from the Automobile Standpoint. Ind. Eng. Chem., Vol. 20, January, 1928, pp. 18-21.

[7] Morrell, J. C., and Egloff, Gustav, The Economic Aspects of Desulphurization in Refining Cracked Motor Fuels, Petroleum Development and Technology in 1926, published by the Am. Inst. Min. and Met. Eng., New York. Also in Oil and Gas Journal, March 17, 1927, p. 150.

[8] Egloff, Gustav, and Lowry, C. D., Jr., Sulphur Toleration in Gasoline. Ind. Eng. Chem., Vol. 20, No. 8, August, 1928, p. 839.

[9] Miller, Walter, Advances in Refinery Technology During 1927. Petroleum Development and Technology in 1927, pp. 393-401, published by Am. Inst. Min. and Met. Eng. Also in Oil and Gas Jour., March 1, 1928, p. 121.

[10] Ind. Eng. Chem., Fifty Million Dollars. (Editorial.) Vol. 19, No. 2, February 1927, p. 189. Ind. Eng. Chem., Shall the Sulphur Tolerance Be Raised? (Editorial.) Vol. 20, No. 8, August, 1928.

[11] Kraemer, A. J., Lane, E. C., and Luce, C. S., the Sulphur Content of Commercial Motor Fuels. Report of Investigations 2843, Bureau of Mines, December, 1927, 8 pp.

SHOWING DISTRIBUTION OF SAMPLES ACCORDING TO SULPHUR CONTENT

City	Sulphur, per cent .01	.02	.03	.04	.05	.06	.07	.08	.09	.10	.11	.12	.13	.14	.15	.16	.18	.27	Not determined	Total
Boston	1	1	2	3	..	3	1	1	..	..	..	..	..	..	..	..	..	..	..	12
New York	2	..	1	2	1	4	1	..	..	..	..	..	..	..	1	..	..	..	..	12
Washington	1	1	..	2	1	4	3	1	3	1	..	..	..	..	..	..	..	..	1	18
Pittsburgh	..	2	..	5	..	2	1	3	2	..	..	1	..	1	..	..	1	..	..	18
Chicago	..	4	2	3	1	..	1	..	..	1	..	1	..	..	..	..	..	..	3	16
New Orleans	1	2	..	1	..	1	..	1	..	..	..	..	1	2	..	..	..	1	..	10
St. Louis	1	3	4	2	2	..	1	1	2	..	..	..	..	..	..	1	..	..	1	18
Bartlesville	2	2	3	3	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	12
Omaha	7	4	1	3	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	18
Denver	3	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Laramie	1	..	1	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
San Fr'cisco	2	..	3	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Total	21	21	18	28	9	14	12	8	7	2	2	2	1	3	1	1	2	1	5	[1]158

*Including five samples for which sulphur content was not determined.

Table 1. Physical and chemical data for samples of motor gasoline from different cities:

Motor Gasoline Survey, January, 1930

Sample Number	Color Saybolt	Doctor Test	Corrosion Test	Sulphur, Per Cent.
Boston				
1	Colored	Negative	No	0.06
2	21	Negative	No	0.04
3	25	Negative	No	0.04
4	+25	Negative	No	0.08
5	+19	Negative	No	0.03
6	+21	Negative	No	0.02
7	Colored	Negative	No	0.06
8	Colored	Negative	No	0.01
9	Colored	Negative	No	0.06
10	Colored	Negative	No	0.07
11	Colored	Positive	No	0.03
12	12	Negative	No	0.04
New York				
13	15	Negative	No	0.15
14	+21	Negative	No	0.06
15	+21	Positive	No	0.03
16	20	Negative	No	0.04
17	Colored	Negative	No	0.04
18	+22	Negative	No	0.06
19	23	Negative	No	0.06
20	Colored	Negative	No	0.06
21	Colored	Negative	No	0.01
22	Colored	Negative	No	0.01
23	10	Negative	No	0.07
24	14	Positive	No	0.05
Washington				
25	Colored	Negative	No	0.04
26	Colored	Positive	No	0.08
27	+18	Positive	No	[2]...
28	+22	Negative	No	0.06
29	Colored	Negative	No	0.02
30	18	Negative	No	0.01
31	22	Negative	No	0.04
32	+21	Negative	No	0.07
33	Colored	Negative	No	0.10
34	24	Negative	No	0.06
35	Colored	Negative	No	0.06
36	+19	Negative	No	0.07
37	Colored	Negative	No	0.09
38	21	Negative	No	0.09
39	Colored	Negative	No	0.07
40	Colored	Negative	No	0.06
41	+25	Negative	No	0.09
42	Colored	Positive	No	0.05
Pittsburgh				
43	Colored	Negative	No	0.06
44	Colored	Negative	No	0.08
45	Colored	Positive	No	0.06
46	Colored	Negative	No	0.14
47	11	Negative	No	0.04
48	Colored	Negative	No	0.02
49	Colored	Negative	No	0.08
50	Colored	Negative	No	0.09
51	Colored	Negative	No	0.09
52	22	Negative	No	0.12
53	+19	Negative	No	0.04
54	Colored	Positive	No	0.04
55	+19	Positive	No	0.18
56	23	Negative	No	0.07
57	+22	Negative	No	0.08
58	Colored	Positive	No	0.04
59	Colored	Negative	No	0.04
60	Colored	Negative	No	0.02
Chicago				
61	+25	Negative	No	0.04
62	+25	Negative	No	0.02
63	+25	Negative	No	0.03
64	25	Negative	No	0.04
65	Colored	Negative	No	0.02
66	+20	Negative	No	0.02
67	19	Negative	No	0.05
68	+25	Positive	No	0.10
69	22	Positive	No	0.12
70	+17	Negative	No	0.03
71	Colored	Positive	Yes	[2]...
72	17	Negative	No	0.07
73	Colored	Positive	No	[2]...
74	+25	Negative	No	0.04
75	Colored	Negative	No	[2]...
76	+25	Negative	No	0.02
New Orleans				
77	+18	Negative	No	0.04
78	Colored	Negative	No	0.02
79	Colored	Negative	No	0.08
80	Colored	Negative	No	0.06
81	+19	Negative	No	0.14
82	19	Positive	No	0.27
83	25	Negative	No	0.14
84	+15	Positive	No	0.02
85	Colored	Negative	No	0.01
86	18	Negative	No	0.13
St. Louis				
87	+25	Negative	No	0.03
88	+22	Positive	No	0.08
89	+19	Positive	No	0.07
90	25	Negative	No	0.09
91	+23	Negative	No	0.09
92	Colored	Negative	No	0.02
93	Colored	Positive	No	[2]...
94	25	Negative	No	0.03
95	+22	Negative	No	0.03
96	+25	Negative	No	0.16
97	+25	Negative	No	0.05
98	Colored	Negative	No	0.02
99	+21	Negative	No	0.04
100	+25	Negative	No	0.03
101	+20	Negative	No	0.05
102	+21	Negative	No	0.02
103	+25	Positive	No	0.01
104	+25	Negative	No	0.04
Bartlesville				
105	+25	Negative	No	0.07
106	+24	Negative	No	0.01
107	+25	Positive	No	0.01
108	25	Negative	No	0.03
109	+25	Positive	No	0.03
110	+25	Positive	No	0.03

(Continued on Page 7)

Equipment - - - Development

HOW TO MAKE CHAIN DRIVES LAST LONGER

By CHARLES R. WEISS
Chief Engineer Link-Belt Company, Indianapolis, Ind.

A MAINTENANCE man recently asked me, "How can I make chain drives last longer?" and, after considering the question, I answered as follows:—

"To make your chain drives last longer there are just five simple things for you to do. Note the sketches I have drawn for illustrating each point.

"FIRST—Proper alignment. Be sure that sprocket wheels are in line on the shafts, as shown in Fig. 1. If the sprockets are not exactly in line, a side pull develops which concentrates the load on the side of the sprocket teeth and one

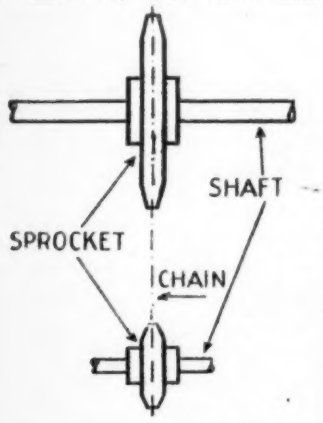


Fig. 1—Proper Alignment

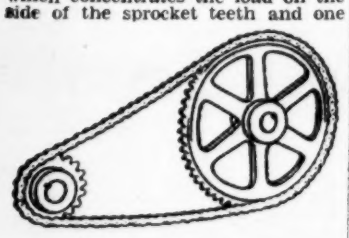


Fig. 2—Proper Adjustment

one side of the chain. This faulty alignment results in excessive wear on both chains and sprockets.

"SECOND—Proper adjustment. The chain should be run just a little slacker than a belt—about as shown in Fig. 2. Too much tension causes undue wear on the chain and wasteful friction on the bearings. Not enough tension, of course, may allow the chain to jump the sprockets or ride the teeth and break.

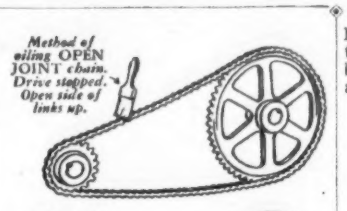

Method of oiling OPEN JOINT chain. Drive stopped. Open side of links up.
Method of oiling CLOSED JOINT chain. Drive operating slowly.

Fig. 3—Frequent Lubrication

"THIRD—Frequent lubrication. The chains should be lubricated at frequent intervals. A good grade of light cylinder oil should be used. A paint brush is a good thing for applying oil to the chain joints, as I have indicated in Fig. 3. Paint the open joints on open (upper)

Fig. 4—Frequent Cleaning

side. Oil the closed joints on inside (upper side of lower run), while drive is running slowly.

"FOURTH—Frequent cleaning. Open drives should be cleaned regularly. Take the chain off and clean it well by soaking and dipping in kerosene (see Fig. 4). Dry well and oil it thoroughly before starting up again. Before shutting down a machine for a period of time, clean the chain and oil it with heavier oil or grease. When it is to be used again, reclean and oil with light oil.

"FIFTH—Well fitting sprockets. Last, but not least, look at the sprocket wheels from time to time to make sure that they are not worn enough to injure the chain. Before the teeth are worn to a hook shape, as shown in lower illustration of Fig. 5, the wheels should be replaced with accurately made and close fitting sprocket wheels."

By giving only ordinary attention

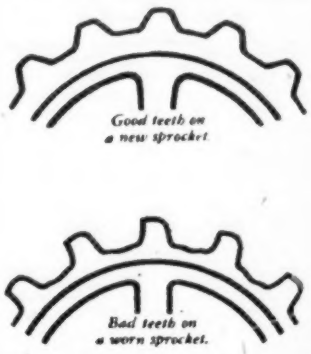
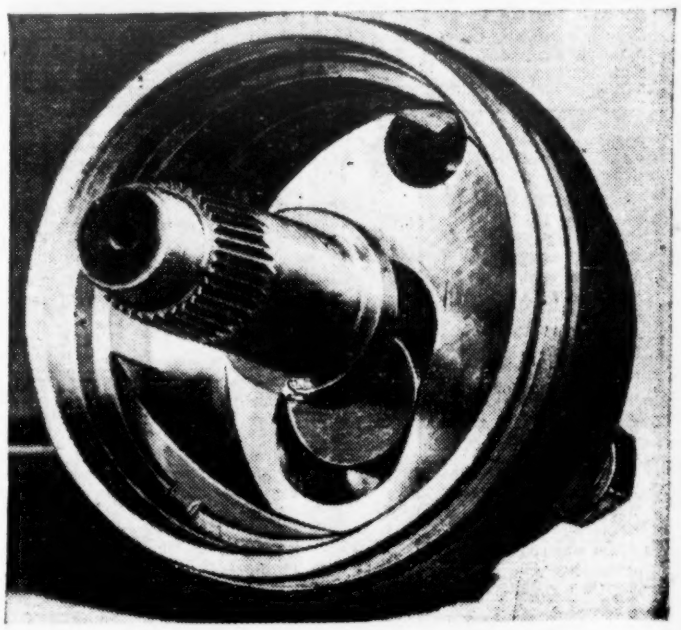


Fig. 5—Well Fitting Sprockets

to your chain drives, you make them last longer and run better, and also reduce the chances of a breakdown.

If these recommendations are followed I am sure you will be time and money ahead, and will get the best wear and service out of your machinery.

Moto Meter Offers New Hydraulic Shock Absorber



(Continued from Page 1)

gency brake on the Model A Ford.

The device consists of a bracket attached to the head of the brake lever and a handle extending over the release button, back toward the driver. By taking hold of the bakelite grip and depressing it slightly, the brake may be released and moved into its reverse position without necessity for reaching under the dash. The bracket is held to the brake head by a single screw.

Sulphur in Motor Fuel

(Continued from Page 7)

Sample Number	Color Saybolt	Doctor Test	Corrosion Test	Sulphur, Per Cent.
111	+25	Negative	No	0.07
112	+24	Negative	No	0.04
113	+25	Negative	No	0.02
114	+25	Negative	No	0.04
115	Colored	Negative	No	0.02
116	+25	Negative	No	0.04
Omaha				
117	+22	Negative	No	0.08
118	Colored	Positive	No	0.04
119	25	Negative	No	0.01
120	Colored	Negative	No	...
121	+25	Negative	No	0.04
122	+25	Negative	No	0.01
123	25	Negative	No	0.01
124	19	Negative	No	0.02
125	25	Positive	No	0.04
126	+25	Negative	No	0.02
127	Colored	Negative	No	0.03
128	+25	Positive	No	0.01
129	+25	Negative	No	0.07
130	Colored	Negative	No	0.02
131	25	Negative	No	0.07
132	Colored	Negative	No	0.01
133	Colored	Positive	No	0.02
134	+25	Negative	No	0.01
Denver				
135	+25	Negative	No	0.01
136	21	Negative	No	0.01
137	24	Negative	No	0.02
138	+25	Negative	No	0.03
139	+25	Negative	No	0.01
140	25	Positive	No	0.02
Laramie				
141	+21	Negative	No	0.05
142	15	Negative	No	0.04
143	15	Negative	No	0.01
144	+15	Negative	No	0.04
145	Colored	Negative	No	0.04
146	+22	Negative	No	0.03
San Francisco				
147	Colored	Negative	No	0.05
148	Colored	Negative	No	0.05
149	24	Negative	No	0.18
150	+25	Negative	No	0.03
151	+25	Negative	No	0.11
152	+21	Negative	No	0.04
153	Colored	Negative	No	0.01
154	Colored	Negative	No	0.03
155	Colored	Negative	No	0.03
156	Colored	Negative	No	0.01
157	+25	Negative	No	0.05
158	+24	Negative	No	0.11

[1] "Colored" denotes that the gasoline as marketed is artificially colored.
[2] Insufficient sample to determine sulphur.

WISCONSIN AXLES

Experience is continually pointing out the low operating expense of Wisconsin Axles.

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Oshkosh Wisconsin

CLARK
CLARK AXLES and METAL WHEELS for commercial vehicles
CLARK EQUIPMENT COMPANY
Buchanan Michigan
AXLES Front & Rear
WHEELS Single or Dual Tire
CAST STEEL HOUSINGS
TRANSMISSIONS

Cumulative New Commercial Car Registration Statistics, June, 1930

Returns for today: District of Columbia

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Dover	Fargo	Federal	Ford	G.M.C.	International	Mack	Paige	Relay	Reo	Republic	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Illinois	1		442	58	45		2	4	590	28	110	9	2	1	18		1	2	1		6	8	5	2	50	1385	Illinois
Dist. of Col.	5	1	23	3	9				91	7	1	3		1	1			3				1			4	153	D. C.
Totals	6	1	465	61	54		2	4	681	35	111	12	2	2	19		1	5	1		6	9	5	2	54	1538	Totals
Illinois, '29	5	10	445	66	92		11	3	783	32	115	36		1	34			4	1		18	17			66	1739	Ill., 1929
Dist. of Col.	3	4	49	3	12				187	5	10	14		3	5		1	6	3		1	7			5	318	D. C., '29
Totals, '29	8	14	494	69	104		11	3	970	37	125	50		4	39		1	10	4		19	24			71	2057	Totals, '29

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS OF

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Am. La France Chief	2	3650	Own	6	3¾x5	33.0	Pw	Str	Vac	DR	Own	C	4	Tim	Wo	31.2	4	D	156	6200	32x6	32x6D
Am. La France W	3-4	3950	Own 2 R	4	4¼x6	28.9	CS	Zen	Vac	AB	Own	C	4	Own	2R	47.4	4	R	160	7200	S36x5	S36x5D
Am. La Fran. Chieftain	3-4	5500	Own	6	4⅛x5⅛	40.8	Pw	Zen	Vac	DR	Own	C	4	Tim	Wo	28.8	4	D	175	7200	S36x8	36x8D
Am. La France V	5	5500	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	Wo	54.4	4	R	165	9800	S36x5	S40x6D
Am. La Fran. Big Chief	6	6725	Own	6	4½x6	48.6	Pw	Zen	Vac	DR	Own	C	4	Own	2R	32.8	4W	D	226	10600	S40x8	S40x8D
Am. La France Z	6½	5750	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	Wo	63.5	4	R	165	10000	S36x7	S40x7D
Am. La France U	7½	6000	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	—	63.5	4	R	165	10500	S36x7	S40x8D
Austin	—	*499	Own	4	2.2x3	7.8	—	Til	—	Aut-L	W-G	U	3	Sal	Sp	—	4	4	75	——	3.75x18	3.75x18
Autocar A	1½-2	2700	Own	6	4 x4¾	38.4	Pw	Str	Vac	DR	Br-L 51	U	4	Own SA	Sp	27.9	4	R	150	5060	32x6	32x6
Autocar D	2-2½	3000	Own	6	4 x4¾	38.4	Pw	Str	Vac	DR	Br-L 51	U	4	Own SD	2R	33.7	4	R	150	5300	32x6	32x6D
*Autocar SH	2½-3	4300	Own	6	4¼x4¾	43.4	Pw	Str	Gra	RB	Own T	U	4	Own H	2R	44.3	R	R	114	6770	34x7	34x7D
Autocar SCH	2½-3	4300	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own H	2R	44.3	R	D	157	6860	34x7	34x7D
*Autocar H	3	4100	Own	4	4½x5½	32.4	CS	Str	Gra	AB	Own T	U	4	Own H	2R	48.6	R	R	114	6770	34x7	34x7D
*Autocar HS	3½	4600	Own	4	4½x5½	32.4	CS	Str	Gra	AB	Own T	U	4	Own C	2R	53.6	R	R	114	7900	40x8	40x8D
*Autocar SHS	3-3½	4800	Own	6	4¼x4¾	43.4	Pw	Str	Gra	RB	Own T	U	4	Own C	2R	53.6	R	R	114	7900	40x8	40x8D
Autocar SCHS	3-3½	4800	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own C	2R	53.6	R	D	157	8180	40x8	40x8D
Autocar TEA	3-3½	5350	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	12	Own TE	2R	101.7	4	D	192	8900	36x8	36x8D
Autocar TFA	3½-5	6100	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Own T	U	12	Own TF	2R	101.3	4	D	192	9300	38x9	38x9D
Autocar C	3½-5	5500	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Own B	C	4	Own C	2R	61.7	R	D	172	9500	42x9	42x9D
Autocar F	7½	6800	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Br-L 70	C	7	Tim	Wo	94.0	4	D	173	11000	36x7S	40x8DS
Autocar G	10	9000	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Br-L 70	C	7	Tim	Wo	97.7	WB	D	171	13000	36x8	36x8D
Brockway 65	1	1195	Con	6	3⅜x4⅝	27.3	Pw	Zen	Vac	Aut	Br-L	U	3	Col	Sp	21.3	4	Tr	137	3400	30x5	30x5
Brockway 75	1¼	1290	Con	6	3⅜x4⅝	27.3	Pw	Zen	Vac	Aut	Br-L	U	4	Col	Sp	25.6	4	Tr	137	3450	32x6	32x6
Brockway 90	1½	1525	Con	6	3⅜x4⅝	27.3	Pw	Zen	Vac	Aut	Br-L	U	4	Col	Sp	25.6	4	Tr	149	3650	32x6	32x6
Brockway 120	2	1990	Con	6	4 x4⅛	38.4	Pb	Zen	P	Aut	Br-L	U	4	Tim	Sp	—	4	Tr	156	5200	32x6	32x6D
Brockway 140	2	2495	Con	6	4 x4⅛	38.4	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	156	5500	32x6	32x6D
Brockway 170	2½	3160	Con	6	4⅛x4¾	40.8	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	6800	32x6	32x6D
Brockway 195	3	3820	Con	6	4⅛x4¾	40.8	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	7500	34x7	34x7D
Brockway 190	3	4185	Con	6	4⅛x4¾	40.8	Pb	Str	P	Aut	Br-L	C	7	Tim	Wo	—	RV	D	168½	7625	34x7	34x7D
Brockway 220	3½	4560	Con	6	4⅜x4¾	45.9	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	8200	36x8	36x8D
Brockway 350	5	5950	Con	6	4⅜x4¾	45.9	Pb	Str	P	Aut	Br-L	U	4	Tim	Wo	—	4HV	D	182	10000	40x8	40x8D
Brockway 290	7½	7250	Con	6	4¾x5¾	54.15	Pw	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4W	D	182	10750	38x7	40x14S
Brockway 640	10	9700	Con	6	4¾x5¾	54.15	Pw	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4W	R	212	14000	38x7	36x10S
Chevrolet	½	365	Own	6	3 1/16x3¾	26.3	CS	Car	P	DR	Own	U	3	Own	Sp	13.61	4	R	107	1835	4.75x19	4.75x19
Chevrolet	1½	520	Own	6	3 1/16x3¾	26.3	CS	Car	P	DR	Own	U	4	Own	Sp	33.46	4	R	131	2375	30x5	30x5
Commerce SRS 11	1	1600	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L 20	U	4	Col 54028	Sp	25.5	4		142	3900	30x5P	30x5P
Commerce SRS 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L 20	U	4	Tim 54000	Sp	29.2	4		162	4300	30x5P	30x5DP
Commerce SR 40	1½	2990	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L 35	U	4	Tim 63704	Wo	34.8	4		168	4700	34x5P	34x5D
Commerce SRS 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L 20	U	4	Tim 54000	Sp	29.2	4		162	4500	32x6P	32x6D
Commerce SR 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L 35	U	4	Tim 63704	Wo	34.8	4		168	4900	36x6	36x6D
Commerce SR 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L 35	U	4	Tim 63704	Wo	34.8	4		168	5100	36x6P	36x6D
Commerce SR 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706DH	Wo	63.0	4		168	7000	36x6P	36x6D
Commerce SR 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706DH	Wo	63.0	4		175	7100	36x6P	36x6D
Commerce SR 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700DP	Wo	93.2	B		175	8200	36x6S	36x12S
Commerce SR 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700DP	Wo	98.2	B		175	8400	36x6S	36x12S
Commerce SR 100	5	5830	Bud B A 6	6	4¼x5¼	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 68700DP	Wo	95.0	B		172	9600	36x6S	40x14S
Day Elder M F	1¼	1345	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Br-L	U	4	Tim 52000 H	Sp	24.2	4	D	135	3500	30x5	30x5
Day Elder G F	1½	2050	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Br-L	U	4	Tim 54000 H	Sp	28.3	4	D	156	4400	30x5	30x5D
Day Elder H F	2	2500	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Br-L 35	U	4	Tim 63702 H	Wo	40.7	4	D	156	4900	S34x4	S34x7
Day Elder J F	3	3900	Con 18 R	6	4 x4½	38.4	Pb	Zen	Vac	DR	Br-L 51	U	4	Tim 65001 H	Wo	41.5	4	D	156	7000	34x7	34x7D
Day Elder K F	4-5	5000	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	Vac	DR	Br-L 60	C	4	Tim 66702 DH	Wo	55.2	4	D	162	9200	S36x5	S36x12
Day Elder N 6 W	7	6000	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	Vac	DR	Br-L 60	C	7	Tim SW 200 H	Wo	73.6	6	D	204	10000	34x7	34x7D
Diamond T 200	½	785	Bud	4	3¾x4½	22.5	Pw	Zen	P	Aut	W-G	U	4	Cla	Sp	—	4	D	128½	3050	30x5	30x5
Diamond T 215	1	885	Bud	6	3⅜x4	27.3	Pw	Zen	P	Aut	W-G	U	4	Cla	Sp	—	4	D	135⅛	3150	30x5	30x5
Diamond T 290	1½	1475	Her WXA 2	6	3½x4½	29.4	Pb	Zen	Vac	Aut	Coy	U	4	Col	Sp	—	4	D	156¼	4160	30x5	30x5D
Diamond T 303	2	1745	Her WXB	6	3¾x4½	33.7	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	—	4	D	160¾	4850	32x6	32x6D
Diamond T 551	2½	2250	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	—	4	D	168	5600	32x6	32x6D
Diamond T 503	2½	2660	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Wo	—	4	D	174	6200	34x7	34x7D
Diamond T 506	2½	2820	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Wis	2R	—	4	D	172½	6300	34x7	34x7D
Diamond T 602	3	3440	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	C	4	Tim	Wo	—	4	D	169½	7500	36x8	36x8D
Diamond T 606	3	3500	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	U	4	Wis	2R	—	4	D	186	7500	36x8	36x8D
Diamond T 700	3½	3740	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	C	4	Tim	Wo	—	R	D	162	8100	S36x5	S36x10
Diamond T 801	4	4140	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Br-L	C	7	Own	Wo	—	6WH	D	189½	8300	36x8	4 wh 36x8
Diamond T 1000	5	4420	Her YXC 2	6	4½x4¾	48.6	Pb	Zen	Gra	Aut	Br-L	C	4	Tim	Wo	—	R	D	170½	9700	S36x6	S40x12
Diamond T 1200	6	5600	Her YXC 2	6	4½x4¾	48.6	Pb	Zen	Gra	Aut	Br-L	C	7	Tim	Wo	—	4RW	D	180	11000	34x7	4 w h 34x7D
Diamond T 1600	8	6220	Her YXC 3	6	4⅝x4¾	51.3	Pb	Zen	Gra	Aut	Br-L	C	7	Tim	Wo	—	4RW	D	190	11700	36x8	4 wh 36x8D
Diamond-T 1601	8	7500	Wak 6 R B	6	5 x5¾	60.0	Pb	Zen	Gra	Mag	Br-L	C	7	Tim	Wo	—	4RW	D	194	12500	36x8	4wh 36x8D
Diamond T 2500	10-12	8000	Wak 6 RB	6	5 x5¾	60	Pb	Zen	Gra	Mag	Br-L	C	7	Tim	Wo	—	4RW	D	194	13100	S36x7	4 wh 36x12S
Dodge Bros. U-1	½	545	Own	4	3⅝x4¼	21.3	Pb	Car	Vac	NE	Own	U	3	Own	Sp	14.28	4	D	109	1900	5.00x20B	5.00x20B
Dodge Bros. U-1	¾	695	Own	4	3⅝x4¼	21.3	Pb	Car	Vac	NE	Own	U	3	Own	Sp	21.68	4	D	124	2260	5.50x20B	5.50x20B
Dodge Bros. DA1	¾	795	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	3	Own	Sp	19.21	4	D	124	2360	5.50x20B	5.50x20B
Dodge Bros. U-1	1	795	Own	4	3⅝x4¼	21.3	Pb	Car	Vac	NE	Own	U	4	Own	Sp	36.13	4	D	133	2590	6.00x20B	32x6
Dodge Bros. DA1	1	895	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	33.45	4	D	133	2690	6.00x20B	32x6
Dodge Bros. DA1	1	1095	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	140	2955	30x5	30x5
Dodge Bros. DA1	1½	1365	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	150	3695	32x6	32x6
Dodge Bros. DA1	1½	1415	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	165	3810	32x6	32x6
Dodge Bros. DB1	2	1595	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	150	3930	32x6	34x7
Dodge Bros. DB1	2	1645	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	165	4070	32x6	34x7
Dodge Bros. DB1	3	1845	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	46.31	4	D	135	4235	32x6	32x6D
Dodge Bros. DB1	3	1895	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	41.43	4	D	165	4520	32x6	32x6D
Dodge Bros. DB1	3	1945	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	46.31	4	D	185	4715	32x6	32x6D
Dover	¾	445	Own	6	2¾x4½	18.2	CS	Mar	Vac	Aut	Own	U	3	Own	Sp	17.8	4	4	110	2150	30x5	31x5.50
Durant	¾	495	Con	4	3⅜x4¼	18.2	Pb	Til	Vac	Aut	Own	C	3	Own	Sp	16.16	4	4	107	1670	28x4.75	28x4.75
Fargo Packet	½	545	Own	6	3 x4⅛	21.6	Pb	Str	Vac	NE	Own	U	3	Own	Sp	14.29	4	Tr	——	1835	5.00x19	5.00x19
Fargo Clipper	¾	725	Own	6	3⅛x4¼	23.4	Pb	Str	Vac	DR	Own	U	3	Own	Sp	15.53	4	Tr	——	2325	5.50x18	5.50x18
Fargo Freighter	1	795	Own	6	3 x4⅛	21.6	Pb	Str	Vac	NE	Own	U	4	Own	Sp	37.19	4	Tr	——	2785	6.00x20	32x6
Federal E6	1½	1090	Con 17 E	6	3⅜x4	27.3	Pb	Zen	Vac	DR	W-G T9	U	4	Cla B370	Sp	34.6	4	Tr	132	3260	6.00x20	32x6
Federal D	1-1½	830	Con W 10	4	3⅞x4¼	24.0	Pb	Zen	P	DR	W-G T9	U	4	Cla B372	Sp	40.8	4	Tr	131	3185	6.00x20	32x6
Federal F7	1½	1525	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	P	DR	Own	U	4	Tim 52005H	Sp	24.3	4	Tr	132	3765	30x5	30x5D
Federal A6	2	1855	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Own	C	4	Cla B610	Sp	38.5	4	Tr	151	4580	32x6	32x6D
Federal A6T	2½	2185	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Own	C	4	Tim 58000H	Sp	41.3	4	Tr	151	4950	32x6	32x6D
Federal A 6 T W	2½	2360	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Own	C	4	Tim 65001 H	Wo	42.0	4	Tr	151	4950	32x6	32x6D
Federal T10B	2½-3	2740	Con 16 R	6	4 x4⅛	38.4	Pb	Zen	P	DR	Own	C	4	Tim 58000H	Sp	36.3	4	Tr	165	6550	34x7	34x7D
Federal T10W	2½-3	2915	Con 16 R	6	4 x4⅛	38.4	Pb	Zen	P	DR	Own	C	4	Tim 65001H	Wo	44.0	4	Tr	165	6550	34x7	34x7D
Federal U6	3-3½	3860	Con 18 R	6	4 x4½	38.4	Pb	Str	P	DR	Br-L 55	C	7	Tim 65706HP	Wo	64.6	4	D	165	7220	34x7	34x7D
Federal 4C6A	4-5	4735	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim 66704HP	Wo	73.6	4	D	192	8330	36x8	36x8D
Federal 4C6AB	4-5	4960	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim 66704TWP	Wo	73.6	4	D	192	8850	36x8	36x8D
*Federal U 6 S W	6	6000	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim S W 200	Wo	71.3	6	Tr	201	9850	34x7	34x7D
*Federal U 6 S W A B	6	6500	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim S W 200	Wo	71.3	4	Tr	201	9900	34x7	34x7D
Federal X8	7½	5085	Con B 7	4	5 x6	40	Pw	Zen	Vac	AB	Br-L 60	C	7	Tim 68700DP	Wo	110.9	R	D	162	9750	36x6S	40x14S
Federal X8R	7½	5810	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	DR	Br-L 60	C	7	Tim 68700DP	Wo	110.9	R	D	162	10000	40x8	40x8D
*Federal 4 C 6 S W	8	7500	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	DR	Br-L 55	C	7	Tim S W 300	Wo	80.8	4	Tr	231	11500	36x8	36x8D
Ford AA	1½	520	Own	4	3⅞x4¼	24.0	Sp	Zen	Gra	Own	Own	U	4	Own	St	42.24	4	R	131½	2792	6.00x20	32x6
Ford AA	1½	545	Own	4	3⅞x4¼	24.0	Sp	Zen	Gra	Own	Own	U	4	Own	St	42.24	4	R	157	2570	6.00x30	6.00x30D
F. W. D.—H	1½	3300	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	Eis	Cotta	C	4	Own	St	38.1	4	R	121	5300	34x7	34x7
F. W. D.—H 6	2	3425	Wak	6	3½x4½	29.4	Pb	Zen	Vac	Eis	Br-L	U	4	Own	St	35.0	4	R	133	5500	34x7	34x7
F. W. D.—BTL 4	2	3900	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	Eis	Br-L	C	7	Own	St	84.7	4	R	120	6000	36x8	36x8
F. W. D.—HH 6	2½	4000	Wak	6	3¾x4½	33.7	Pb	Zen	Vac	Eis	Br-L	C	7	Own	St	101.0	4	R	133	5700	36x8	36x8
F. W. D.—B	3	4200	Own	4	4¾x5½	36.1	Pb	Str	Gra	Eis	Own	C	3	Own	St	35.6	4	R	124	6460	36x6S	36x6S
F. W. D.—B 5	3	4525	Own	4	4¾x5½	36.1	Pb	Str	Gra	Eis	Own	C	5	Own	St	88.6	4	R	132	6800	36x6S	36x6S
F. W. D.—B T	3	4742	Own	4	4¾x5½	36.1	Pb	Str	Vac	Eis	Own	C	5	Own	St	101.0	4	R	133¾	7700	40x7S	40x5SD
F. W. D.—U 4	3	4575	Own	4	4¾x5½	36.1	Pb	Str	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7000	36x6S	36x6S

1930 COMMERCIAL CARS BUILT IN THE UNITED STATES

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
F. W. D.—C U 6	3½	5120	Wak	6	4 x4¾	38.6	Pb	Zen	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7200	36x6S	36x8S
*F. W. D.—X 6	6	6500	Wak	6	4¼x4¾	43.3	Pb	Zen	Vac	Eis	Own	C	5	Own	St	88.6	"	4	170	9500	36x8	36x8
Garford Series S 11	1	1600	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Col	Sp	25.5	4	D	142	3900	30x5	30x5
Garford Series S 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4300	30x5	D30x5
Garford Series 40	1½	2990	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4700	34x5	D34x5
Garford Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4500	32x6	D32x6
Garford Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4900	36x6	D36x6
Garford Series 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	5100	36x6	D36x6
Garford Series 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7000	36x6	D36x6
Garford Series 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7100	36x6	D36x7
Garford Series 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8200	S36x6	S36x12
Garford Series 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8400	S36x6	S36x14
Garford Series 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	9600	S36x6	S40x14
Gen. Mot. T11-1001	*3800	625	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Pontiac	Sp	14.7	4	4	109⅝	1980	5.00x19B	5.50x19B
Gen. Mot. T15-1501	*5400	695	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51500	Sp	16.14	4	4	130	2625	5.50x20B	5.50x20B
Gen. Mot. T17-1701	*5500	735	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51505	Sp	16.04	4	4	130	2650	6.50x20B	6.50x20B
Gen. Mot. T19-2201	*6300	895	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	34.45	4	D	130	2850	5.50x20B	32x6
Gen. Mot. T17-1707	*6500	750	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51505	Sp	16.04	4	4	130	2670	5.50x20B	32x6
Gen. Mot. T25-2501	*6800	1235	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	29.62	4	D	130	3375	6.00x20B	7.50x20B
Gen. Mot. T19-2214	*8500	985	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	34.45	4	D	130	2925	30x5	30x5D
Gen. Mot. T25-2509	*8500	1280	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	29.62	4	D	130	3425	30x5	30x5D
Gen. Mot. T30-3206	*9000	1555	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1617	Sp	28.6	4	D	141	4450	6.00x20B	8.25x20B
Gen. Mot. T42-4206	*10600	1735	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1717	Sp	33.38	4	D	141	4575	7.00x20B	9.00x20B
Gen. Mot. T30-3203	*11000	1605	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1617	Sp	28.6	4	D	141	4525	32x6	32x6D
Gen. Mot. T44-4401	*12000	1965	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat T44DR	2R	40.89	4	D	141	4825	32x6	32x6D
Gen. Mot. T42-4203	*14000	1960	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1717	Sp	33.38	4	D	141	4905	36x6	36x6D
Gen. Mot. T44-4404	*15000	2095	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat T44DR	2R	40.89	4	D	141	5095	34x7	34x7D
Gen. Mot. T60-6202	*16500	3035	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Mun	U	4	Tim 65706	Wo	52.53	4	D	154¼	6925	34x7	34x7D
Gen. Mot. T60-6205	*18500	3125	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Mun	U	4	Tim 65706	Wo	52.53	4	D	154¼	6925	9.00x20B	9.00x20DB
Gen. Mot. T82-8202	*19000	3795	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim 66704	Wo	82.2	4	D	155	7500	9.00x20B	9.00x20DB
Gen. Mot. T82-8207	*22000	4070	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim 66704	Wo	82.2	4	D	155	7850	38x7	38x9D
Gen. Mot. T90-9001	*23000	5885	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim SW-200	Wo	76.04	WR	D	185¼	9400	7.50x20B	7.50x20D
Gen. Mot. T90-9004	*28000	6055	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim SW-200	Wo	76.04	WR	D	185¼	9775	8.25x20B	8.25x20DB
*Gramm B	1½	1495	Lyc 4 SL	6	3¼x4½	25.3	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	34.3	4	Tr	140	3800	30x5	30x5D
*Gramm C	2	1795	Lyc ASA	6	3⅝x4½	31.54	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	31	4	Tr	160	4820	32x6	32x6D
*Gramm D	2½	2195	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	33	4	Tr	160	5100	32x6	32x6D
*Gramm E	3	2595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	U	4	Tim	Sp	35	4	Tr	160	5300	34x7	34x7D
*Gramm EY	3	3595	Con 20 R	6	4¼x4¾	40.80	Pb	Zen	P	Aut	Ful	U	4	Tim	Sp	30	4	D	190	6750	32x6	32x6D
*Gramm O-35	3	3595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	71.2	D	R	153	7200	36x5S	36x10S
*Gramm T-38	3	3595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	45	D	R	153	7200	36x5S	36x10S
*Gramm O-45	4	3995	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	75.8	D	R	153	7700	36x5S	36x12S
*Gramm T-48	4	3995	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	47	D	R	153	7700	36x5S	36x12S
*Gramm GY	4	4345	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	28	4	D	210	7200	34x7	34x7D
*Gramm O-60	5	4745	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	78.4	D	R	153	8800	36x6S	36x14S
*Gramm HY	5	6545	Con 16 H	6	4¾x5¾	54.15	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	25.2	4	D	236	9600	36x8	36x8D
Indiana 64	1	1195	Con	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	U	3	Col	Sp	21.3	4	Tr	137	3435	30x5	30x5
Indiana 74	1¼	1290	Con	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	U	4	Col	Sp	25.6	4	Tr	137	3450	32x6	32x6
Indiana 11	1¼	1425	Her	4	4 x5	25.6	Pb	Str	Gra	Aut	Br-L	U	3	Cla	Sp	24.48	R	R	129½	3500	30x5	30x5
Indiana 89	1½	1525	Con	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	U	4	Col	Sp	25.6	4	Tr	149	3650	32x6	32x6
Indiana 111	1½	1630	Her	4	4 x5	25.6	Pb	Str	Gra	Aut	Br-L	U	3	Cla	Sp	26.4	R	R	129½	3600	30x5	32x6
Indiana 111 XW	2	1850	Her	4	4 x5	25.6	Pb	Str	Vac	Eis	Br-L	U	4	Wis	2R	30.14	R	Tr	120	3740	32x6	32x6D
Indiana 120	2	1990	Con	6	4 x4⅛	38.4	Pb	Str	P	Aut	Br-L	U	4	Tim	Sp	—	4	Tr	156	5200	32x6	32x6D
Indiana 140	2	2495	Con	6	4 x4⅛	38.4	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4V	Tr	156	5500	32x6	32x6D
Indiana 115 A	2½	2740	Her	4	4¼x5	28.9	Pb	Str	Vac	Eis	Br-L	U	4	Cla	Sp	42.99	R	Tr	132	4970	32x6	34x7D
Indiana 615 A	2½	3070	Wis	6	3⅜x5	27.34	Pb	Str	Vac	Eis	Br-L	U	4	Cla	Sp	46.29	R	Tr	136	5160	32x6	32x6D
Indiana 170	2½	3160	Con	6	4⅛x4¾	40.8	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	6800	32x6	32x6D
Indiana 127 AW	3	3775	Her	4	4¼x5	28.90	Pb	Str	Vac	Eis	Br-L	U	5	Wis	2R	41.72	RV	D	158¼	7000	34x7	34x7D
Indiana 627 AW	3	4075	Wis	6	4 x5	38.40	Pb	Str	Vac	Eis	Br-L	U	5	Wis	2R	41.72	RV	D	156¼	7200	34x7	34x7D
Indiana 195	3	3820	Con	6	4⅛x4¾	40.8	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	7500	34x7	34x7D
Indiana 190	3	4185	Con	6	4⅛x4¾	40.8	Pb	Str	P	Aut	Br-L	C	7	Tim	Wo	—	RV	D	168½	7625	34x7	34x7D
Indiana 220	3½	4560	Con	6	4⅝x4¾	45.9	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	8200	36x8	36x8D
Indiana 250	5	5950	Con	6	4⅝x4¾	45.9	Pb	Str	P	Aut	Br-L	U	4	Tim	Wo	—	4HMV	D	182	10000	40x8	40x8D
Indiana 290	7	7250	Con	6	4¾x5¾	54.15	Pb	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4W	D	182	10750	38x7	40x14S
Indiana 640	10	9700	Con	6	4¾x5¾	54.15	Pb	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4RW	D	212	14000	38x7	36x10S
International AW-1	¾	720	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Eat 517	Sp	17.4	4	2	136	2620	5.25x20	5.25x20
Int. Harvester Sp. Del.	¾	720	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Eat 502 R	Sp	15.1	4	2	124	2200	30x5.25	30x5.25
Int. Harv. 6 Spd. Spec.	1	820	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Eat 1124	Sp	52.6	4	2	124	2430	30x5	30x5
Int. Harvester S-24	1¼	1160	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	DR	Own	U	3	Eat 1002	Sp	21.3	4	2	130	3200	30x5	30x5
Int. Harvester S-26	1¼	1310	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	3	Eat 1002	Sp	21.3	4	2	130	3250	30x5	30x5
Int. Harvester SF-34	1½	1450	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	DR	Own	U	3	Eat 1502	Sp	22.6	4	2	140	3520	30x5	32x6
International AL-3	1½	1450	Lyc SLH	6	3¼x4½	25.3	Pb	Zen	Vac	DR	W-G	U	4	Eat 1518	Sp	42.9	4	2	138	4300	6.00x20	6.00x20D
Int. Harvester SF-36	1½	1600	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	3	Eat 1502	Sp	22.6	4	2	140	3570	30x5	32x6
Int. Harvester SD-44	2	1590	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	AB	Own	U	4	Eat 2002	Sp	40.6	4	2	117	3700	30x5	32x6
Int. Harvester SD-46	2	1740	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	AB	Own	U	4	Eat 2002	Sp	40.6	4	2	117	3750	30x5	32x6
Int. Harvester SF-46	2	1950	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	4	Eat 2002	Sp	40.6	4	2	140	4000	32x6	32x6D
Int. Harvester A-4	2	1985	Own-FBB	6	3⅝x4½	31.5	Pb	Zen	Vac	DR	Own	U	5	Eat 1712	Sp	47.8	4	2	145	5070	32x6	32x6D
Int. Harvester HS-54	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Eat 54	2R	60.5	4	4	148	8000	36x5S	36x8S
Int. Harvester HS-54-C	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Own A M 428	Ch	63.8	4	4	148	8665	36x5S	36x10S
Int. Harvester W-1	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Eat 58	2R	60.5	4	2	148	8300	36x5S	36x8S
Int. Harvester A-5	3	2550	Own-FBB	6	3⅝x4½	31.5	Pb	Zen	Vac	DR	Own	U	5	Eat 2112	Sp	52.6	4	2	156	5606	34x7	34x7D
Int. Harvester HS-74	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Eat 74	2R	70.5	4	4	160	10700	36x5S	40x12S
Int. Harvester HS-74-C	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Own A M 427	Ch	79.1	4	4	160	11000	36x6S	40x12S
Int. Harvester W-3	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Eat 78	2R	70.5	4	2	160	10125	36x6S	40x12S
Int. Harv's'r HS-104-C	5	5500	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Own A M 427	Ch	90.5	4	4	160	11095	36x6S	40x14S
La France-Repub. A-1	*6000	990	Lyc	6	2⅞x4¾	19.8	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	36.1	4	Tr	132	3000	5.50x20	32x6
La France-Repub. C-1	*7000	1295	Lyc	6	3¼x4½	25.4	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.1	4	Tr	144	3300	6.00x20	32x6
La France-Repub. D-1	*9000	1595	Lyc	6	3¼x4½	25.4	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	37.9	4	Tr	144	3725	30x5	30x5D
La France-Repub. F-2	*13000	2395	Lyc	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	40.1	4	D	174	5870	32x6	32x6D
La France-Repub. H-1	*15000	2985	Lyc	6	3⅞x5	36.0	Pb	Zen	Vac	Aut	Ful	U	4	Eat	Sp	36.0	4	D	163	5850	34x7	34x7D
La France-Repub. L-1	*18000	3595	Lyc	6	3⅞x5	36.0	Pb	Zen	Vac	Aut	Ful	U	4	Eat	2R	48.0	4	D	180	6900	36x8	36x8D
La France-Repub. M-1	*20000	3800	Wak	6	4 x4¾	38.4	Pb	Zen	Vac	Aut	Ful	U	5	Eat	2R	62.3	R	D	171	6900	36x8	36x8D
Mack BL	1	2500	Own	6	3¼x5	25.39	Pw	Str	Vac	NE	Own	U	4	Own	Sp	Opt	4	D	148	——	B6.00x20	DB6.00x20
††Mack BG	1½	3000	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	Sp	Opt	4	D	138-156	——	32x6	D32x6
Mack AB	2½-3	3950	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	2R	Opt	R	D	2-Opt	——	36x8S	36x8S
††Mack AB	2½-3	3500	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	Ch	Opt	R	D	2-Opt	——	36x8S	36x8S
Mack AB	2½-3	4750	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	2R	Opt	R	D	2-Opt	——	34x7	D34x7
††Mack AB	2½-3	4300	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	Ch	Opt	R	D	2-Opt	——	34x7	D34x7
††Mack BC	3½-4	4250	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	2R	Opt	4	D	2-Opt	——	36x5S	36x5DS
††Mack BC	3½-4	5250	Own	6	4 x5½	38.4	Pb	Str	Vac	NE	Own	U	4	Own	2R	Opt	4	D	2-Opt	——	34x7	D36x8
††Mack BJ	3½-5	6150	Own	6	4½x5½	48.6	Pb	Str	Vac	NE	Own	C	4	Own	2R	Opt	4	D	3-Opt	——	36x8	36x8D
††Mack AK	3½-5	5150	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	4	J	3-Opt	——	36x5S	36x5DS
††Mack AK	3½-5	5250	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	C	4	Own	2R	Opt	4	D	3-Opt	——	36x5S	36x5DS
††Mack AC	3½-5	4950	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	——	36x5S	40x10S
††Mack AC	5½-7	5500	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	——	36x6S	40x12S
††Mack AC	7½	6000	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	——	36x7S	40x14S
††Mack AP	7½	9500	Own	6	5 x6	60.0	Pb	Str	Gra	NE	Own	J	4	Own	Ch	Opt	R	J	191	——	36x7S	40x8DS
Mack AC 6-wheel	10	7500	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	4R	J	3-Opt	——	36x7S	40x12S
Mack AP 6-wheel	10	12000	Own	6	5 x6	60.0	Pb	Str	Gra	NE	Own	J	4	Own	Ch	Opt	4R	J	3-Opt	——	36x7	40x12S
Paige	¾	860	Own	6	3¼x4½	25.35	Pb	DL	P	DR	W-G	U	3	Sal	Sp	17.36	4	Tr	115	2465	B5.50x19	B5.50x19
Relay Series 15	¾	1370	Con 17 E	6	3⅜x4	27.3	Pb	Str	Vac	Aut	W-G	U	4	Own	R	38.4	4	D	131	3750	30x5P	30x5P
Relay Series 15	1	1410	Con 17 E	6	3⅜x4	27.3	Pb	Str	Vac	Aut	W-G	U	4	Own	R	38.4	4	D	139	3800	30x5P	30x5P
Relay Series S 11	1	1700	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	25.7	4	D	142	4050	30x5	30x5
Relay Series S 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	25.7	4	D	162	4500	30x5	D30x5

Major Specifications and Mechanical Details of 1930 Commercial Cars Built in the United States

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Relay Series 40	1½	2990	Bud D S 6	6	3⅝x5	31.2	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5300	34x5	D34x5
Relay Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	30.0	4	D	162	4700	32x6	D32x6
Relay Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5500	36x6	D36x6
Relay Series 50	2	3860	Bud D W 6	6	3¾x5	33.7	Pb	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	6800	36x6	D36x6
Relay Series 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5700	36x6	D36x6
Relay Series 50	2½	3950	Bud D W 6	6	3¾x5	33.7	Pb	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	7000	36x6	D38x7
Relay Series 60	2½	4530	Bud B A 6	6	4 x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	175	7350	36x6	D36x6
Relay Series 50	3	4130	Bud D W 6	6	3¾x5	33.7	Pb	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	7200	36x6	D40x8
Relay Series 60	3	4595	Bud B A 6	6	4 x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	175	7500	36x6	D38x7
Relay Series 80	3	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	U	8	Own	R	84.18	4	D	175	8400	36x6	S40x10
Relay Series 60	3½	4745	Bud B A 6	6	4 x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	175	7800	38x7	D40x8
Relay Series 80	3½	5330	Bud B A	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Cov	C	8	Own	R	84.18	4	D	175	8600	36x6	S40x12
Relay Series 80	4	5380	Bud B A	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Cov	C	8	Own	R	84.18	4	D	175	8800	38x7	S40x14
Relay Series 100	5	6615	Con 21 R	6	4⅜x4¾	45.9	Pb	Str	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	230	10000	9.00x24	D9.75x24
Reo D F 129	½	1095	Own	6	3⅝x5	27.3	Pb	Sch	P	DR	Own	U	3	Own	Sp	17.1	4	Tr	129	——	6.00x20	32x6
Reo 15 Junior	½	785	Con 16 E	6	3⅜x4	27.3	Pb	Sch	P	DR	W-G	U	3	Sal	Sp	14.63	4	Tr	115	2290	6.00x18	6.00x18
Reo D F	1	1095	Own C B	6	3⅜x5	27.3	Pb	Sch	P	DR	Own	U	3	Own	Sp	17.1	4	Tr	135	3200	6.00x20	32x6
Reo F A	1½	1295	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	22.96	4	Tr	135	3525	6.50x20	32x6
Reo F E	1½	1395	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	22.96	4	Tr	152	3700	6.50x20	32x6
Reo F F	1½	1395	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	22.96	4	Tr	156	3750	6.50x20	32x6
Reo F H	2	1595	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.6	4	Tr	142	4165	32x6	32x6D
Reo F C	2	1645	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.62	4	Tr	152	4025	32x6	32x6D
Reo F D	2	1745	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.62	4	Tr	168	4075	32x6	32x6D
Reo G A	3	3035	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	163	4625	32x6	32x6D
Reo G C	3	2140	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	179	4850	32x6	32x6D
Reo G D	3	1985	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	46.2	4	Tr	144	4570	32x6	32x6D
Reo G C S	3	2375	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	210	5320	32x6	32x6D
Rugby T	½	655	Con	6	3¼x4	25.4	Pb	Str	P	Aut	Own	U	3	Own	Sp	15.6	4	4	——	2160	29x5	29x5
Rugby 6-15	1	865	Con	6	3¼x4	25.4	Pb	Str	P	Aut	Br-L	U	4	Sal	Sp	34.49	4	Tr	135	2900	20x5.50	32x6
Rugby 615	1½	930	Con	6	3¼x4	25.4	Pb	Str	P	Aut	Br-L	U	4	Sal	Sp	34.49	4	Tr	135	3000	5.50x20	30x5D
Selden 7 C	1	1098	Con	6	2¾x4¾	19.84	Pb	Zen	Vac	Aut	Br-L	U	3	Tim	Sp	—	4	D	124	3600	30x5	30x5
Selden 17 C	1½	1500	Con	6	3⅜x4	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	142	3900	32x6	32x6
Selden 317 C	1½	1610	Con	6	3⅜x4⅝	27.34	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	142	3900	32x6	32x6
Selden 37 C	2	1935	Con	6	3⅜x4⅝	27.34	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	151	4800	32x6	32x6D
Selden 39 C	2½	2920	Con	6	4 x4⅛	38.4	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	164	5800	32x6	32x6D
Selden 47 C B	3½	3785	Con	6	4 x4½	38.4	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	171	7200	34x7	34x7D
Selden 47 C D	4	4435	Con	6	4 x4½	38.4	Pb	Str	Vac	Aut	Br-L	U	5	Wis	2R	—	4	D	171	7600	36x8	36x8D
Selden 67 C	5	4975	Con	6	4⅜x4¾	45.94	Pb	Str	Vac	Aut	Br-L	C	7	Wis	2R	—	4	D	171	8700	36x8	36x8D
Selden 77	7	7365	Con	6	4¾x5¾	54.15	Pb	Str	Vac	Aut	Br-L	C	7	Wis	2R	—	4	D	178	12000	36x7	40x7D
Service Series S 11	1	1600	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Col	Sp	25.5	4	D	142	3900	30x5	30x5
Service Series S 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4300	30x5	D30x5
Service Series 40	1½	2990	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4700	34x5	D34x5
Service Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4500	32x6	D32x6
Service Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4900	36x6	D36x6
Service Series 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	5100	36x6	D36x6
Service Series 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7000	36x6	36x6
Service Series 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7100	36x6	D38x7
Service Series 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8200	S36x6	S36x12
Service Series 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8400	S36x6	S36x14
Service Series 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	9600	S36x6	S40x14
Stewart 30	1	695	Lyc AFE	4	3¾x4½	22.5	Pb	Str	Vac	DR	W-G	U	4	Sal	Sp	35.1	4	D	130	2905	6.50x20	6.50x20
Stewart 30 X	1	795	Lyc WRG	6	2⅞x4¾	19.8	Pb	Str	Vac	DR	W-G	U	4	Sal	Sp	35.1	4	D	130	2965	6.50x20	6.50x20
Stewart 40	1½	895	Lyc AFE	4	3¾x4½	22.5	P	Str	Vac	DR	W-G	U	4	Cla	Sp	35.1	4	D	130	3215	6.50x20	6.50x20D
Stewart 34 X	1½	1195	Lyc 4 SL	6	3¼x4½	25.3	Pb	Str	Vac	DR	W-G	U	4	Cla	Sp	35.1	4	D	145	3526	6.50x20	6.50x20
Stewart 28 X	1¾	1495	Lyc 4 SL	6	3¼x4½	25.3	Pb	Str	Vac	DR	Ful	U	4	Cla	Sp	44.1	4	D	136	3840	6.50x20	6.50x20
Stewart 29 XS	2	1695	Lyc ASA	6	3⅝x4½	25.3	Pb	Str	P	DR	Ful	U	4	Cla	Sp	44.1	4	D	145	4188	32x6	32x6D
Stewart 26 XW	2	2290	Lyc TF	6	3⅝x5	31.5	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	48.1	4	D	165	5095	32x6	32x6D
*Stewart 18 X	2½	2690	Lyc TF	6	3⅝x5	31.5	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	48.1	4	D	165	5788	32x6	32x6D
Stewart 32 X	2½	1990	Lyc ASA	6	3⅝x4½	31.54	Pw	Str	Vac	DR	Ful	U	4	Cla	Sp	46.1	4	D	165	5100	32x6	32x6D
Stewart 33 X	3	3290	Lyc TS	6	3⅞x5	36.2	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	105.1	4	D	165	6450	34x7	34x7D
Stewart 19 X	3½	3690	Lyc TS	6	3⅞x5	36.2	Pw	Str	Vac	DR	Ful	C	12	Tim	Wo	105.1	4	D	165	6990	36x5	36x10
Stewart 31 X	5	4990	Wak 6 RSL	6	4⅜x5⅛	45.9	Pw	Str	Vac	DR	Ful	C	8	Tim	Wo	82.1	4	D	165	8400	36x6S	36x6SD
Stewart 27 X	6-7	5700	Wak 6 RSL	6	4⅜x5⅛	45.99	Pw	Str	Vac	DR	Ful	U	8	Tim	Wo	93.81	4	D	165	9927	36x7	40x7D
Studebaker GN-P	¾	845	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	15.15	4	‡4	115	2465	6.00x19	6.00x19
Studebaker GN-S	1	1045	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	13.8	4	D	130	2990	6.00x20	30x5
Studebaker GK-N	1	1095	Own	6	3⅜x4⅝	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	13.8	4	D	146	3000	30x5	30x5
Studebaker GN-N	*4000	1245	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Cla	U	4	Cla	Sp	33.5	4	D	146	3265	30x5	32x6
Studebaker 77	*12500	2895	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	158	5030	7.00x20	7.00x20D
Studebaker 88	*12500	3295	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	184	5200	7.50x20	7.50x20D
Studebaker 99	*14000	3795	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	184	5680	7.50x20	7.50x20D
Whippet 96 A	½	360	Own 96 A	4	3⅛x4¾	15.6	Pb	Til	Vac	Aut	Own	U	3	Own	Sp	14.74	4	R	103¼	1691	4.75x19	4.75x19
White 15 B	1	1545	Own GKA	4	3¾x5⅛	22.5	CS	Zen	Vac	L-N	Own	C	4	Own	Sp	18.6	R	R	133½	3242	30x5	30x5
White 60	1	1850	Own 2 A	6	3½x4½	29.4	Pw	Zen	Vac	DR	Own	U	3	Own	Sp	17.9	4	D	138	3562	30x5	30x5
White 57	1¼	2725	Own GRC	4	4 x5¾	25.6	Pw	Zen	Vac	L-N	Own	U	4	Own	Sp	19.3	R	R	146	3755	32x6	32x6
White 20 A	1½	2125	Own GKA	4	3¾x5⅛	22.5	CS	Zen	Vac	L-N	Own	C	4	Own	2R	32.1	R	R	145½	4412	34x5	34x5D
White 61	1½	2450	Own 2 A	6	3½x4½	29.4	Pw	Zen	Vac	DR	Own	U	4	Own	Sp	23.4	4	D	148	4612	30x5	30x5D
White 56	2	3125	Own GRC	4	4 x5¾	25.6	Pw	Zen	Vac	Mag	Own	U	4	Own	Sp	26.2	R	D	165	5096	36x4S	36x7S
White 51 A	2½	3750	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	Sp	35.5	R	D	170	6256	36x5S	36x8S
White 58	3	4400	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	49.7	4	R	180	7535	36x5S	36x5SD
White 55	3½	4650	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	66.1	D	R	174	8512	36x5S	40x5SD
White 52 T	3½	4700	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	76.5	D	R	129½	8236	36x5S	40x5SD
White 52	5	5100	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	5	Own	IG	92.3	D	R	174	9184	36x6S	40x12S
White 59A	7½	6000	Own 3 A	6	4 x5¼	38.4	Pw	Zen	P	L-N	Own	U	4	Own	Sp	66.5	D	R	155⅛	——	40x8	40x14S
Willys Six 98 B	½	525	Own 98 B	6	3¼x3⅞	25.35	Pb	Til	Vac	Aut	Own	U	3	Own	Sp	14.28	4	B	110	1903	5.00x19	5.00x19
Willys Six C-101	1½	695	Own 98 B	6	3¼x3⅞	25.35	Pb	Til	Vac	Aut	Cov	U	4	Cla	Sp	36.12	4	B	131	2675	5.50x20	30x5
Willys-Knight T-103	1½	825	Own KGT	6	2⅛x4¾	20.7	Pb	Til	Vac	Aut	Cov	U	4	Cla	Sp	42.33	4	B	131	2808	5.50x20	30x5

GENERAL NOTATIONS

*†REFERENCE MARKS apply to individual lines only and explanations are given under the subdivision for each company in the "SPECIAL NOTATIONS."

CAPACITIES given in this table are in tons or fractions of tons. *Shows maximum allowable gross weight in pounds.

WHEEL BASES given are standard, but optional wheel bases are available in many cases.

ENGINE—Bud, Buda; Con., Continental; Her, Hercules; Kgt, Knight; Lyc, Lycoming; Wak Waukesha; Wis, Wisconsin. Hall, American Car & Foundry.

LUBRICATION—Pb, pressure lubrication to main and connecting rod bearings; Pw, full pressure lubrication to all main, connecting rod and camshaft bearings, including wrist-pins; CS, circulating splash; Sp, Splash.

CARBURETOR—Car, Carter; Mar, Marvel; Sch, Wheeler-Schebler; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson; Zen, Zenith-Detroit.

FUEL FEED—Gra, Gravity; Vac, Vacuum tank; P, Fuel pump.

IGNITION — AB, American-Bosch; Aut, Electric Auto-Lite; Eis, Eisemann; L-N, Loece-Neville; N-E, North East; RB, Robert Bosch; D R, Delco-Remy; Mag, Magneto.

TRANSMISSION—Br, L, Brown-Lipe; Cov, Covert; Ful, Fuller; Mec, Mechanics Machine; Mun, Muncie; W-G, Warner Gear; Cotta, Cotta Gear Co.

LOCATION—C, Center, amid; U, in unit with engine; J, on jackshaft.

REAR AXLE—Cla, Clark Equipment; Col, Columbia; Eat, Eaton; Sal, Salisbury; Tim, Timken, Wis, Wisconsin.

FINAL DRIVE—IG, Internal gear; St, Straight bevel; Sp, Spiral bevel; Wo, Worm; 2R, Double reduction; Ch, Chain; R, Relay drive.

BRAKES—J, Jack shaft; R, Rear wheels; D, Drive shaft; 4, four-wheel; Tr, Transmission; V, Vacuum booster; W, Westinghouse air brake. B, Both front and rear wheels.

TIRES—B, Balloon; D, Dual; S, Solid; P, Pneumatic.

SPECIAL NOTATIONS

AMERICAN-LA FRANCE

*Chief model also available as 2½-ton model, 34x7 tire, dual rear, weight 6,400. Price $3,900.

Chieftain model also available as Dump Truck, 160-inch wheel base.

Balloon tires optional on Chief, Chieftain and Big Chief models.

AUSTIN

*Price includes body.

AUTOCAR

*Engines in these models are located under the driver's seat.

DAY-ELDER

Models GF and HF also available in 186-inch wheel base.

Model JF also available in the following wheel bases: 165, 180 and 204 inches.

Model KF also available in 202-inch wheel base and tractor 149.

DURANT LINE

*Price includes panel body.

F. W. D.

*Indicates six-wheel model. Special power take-off transmission, which provides 3 power take offs which may be operated in any transmission speed, optional on all models.

*Foot brake on X6 is a lockheed type operating on all six wheels.

FEDERAL

*Six wheelers.

GRAMM

*Models B, C, D and E are furnished in three wheel base lengths—others on request.

*Models GY and GYB also available in 190-inch wheel base.

*Models HY and HYB also available in 210-inch wheel base.

Tire sizes and electrical equipment optional, depending upon type of service—coach or van.

*Model O Series, Large engine, pneumatic tires, special wheel bases optional at extra cost.

*Model T Series, Large engine, pneumatic tires, special wheel bases and 8 speed transmission optional at extra cost.

GENERAL MOTORS TRUCK LINE

*Capacity indicated for each chassis is the recommended gross weight without exceeding rated capacity of tires. The tire size does not affect the straight rating for which chassis is guaranteed and each model is designed to operate satisfactorily under average conditions with load is giving a total gross weight (chassis, body, equipment and payload) equal to straight rating given below. The additional standard wheel base lengths, the number of additional tire types (tire combinations—each type carrying a recommended gross weight) and the ton range on a nominal payload basis for each model is given below.

Model	Straight Rating	Additional Wh. Bases, ins.	Addit'l Tire Types	Payl'd Range
T-11	3800	None	None	½
T-15	5400	141	2	¾
T-17	6500	141	6	¾-1¼
T-19	8500	141, 152	16	1-2
T-25	8500	141, 152	11	1-1¾
T-30	11000	152, 164	12	1½-2½
T-42	14000	152, 164, 181	10	2-3½
T-44	15000	152, 164, 181	10	2-4
T-60	18500	166¾, 184½, 200¼	16	2½-4½
T-82	22000	167½, 185¼, 201	10	3-6
T-99	28000	201, 220	5	5-7½

Optional rear axle ratios are available for all models.

MACK LINE

Other wheel bases furnished on all truck models.

On 6-wheel jobs, 4 rear wheels driven by chains, foot brake on 4 rear wheels.

HYP.—Hypoid drive, single reduction.

††Made also in tractor models.

REO LINE

Model F A also available in 129-inch wheel base.

RUGBY

F—Chassis weight includes body.

STEWART LINE

Model 30 and 30X can also be supplied in 120 and 140-inch wheel base.

Model 40 can also be supplied in 140 and 160-inch wheel base.

*Model 34X can be supplied in 145, 160 and 176-inch wheel base.

Model 28X can be supplied in 145, 160 and 176-inch wheel base.

Model 29XS can be supplied in 160 and 176-inch wheel base.

*Model 26XW can be supplied in 148, 176 and 190-inch wheel base.

*Models 18X, 32X and 33X can be supplied in 148, 190 and 220-inch wheel base.

*Models 19X, 31X and 27X can be supplied in 148, 172, 190, 220 and 235-inch wheel base.

As optional equipment models 18X, 19X, 33X, 31X and 27X can be supplied with Timken dual reduction rear axle.

STUDEBAKER LINE

*Capacity Model GN-N is 4,000 lbs. for body, cab, driver and payload.

Maximum gross load, chassis, body and payload for Models 77 and 88 is 12,500 lbs. and for Model 99 is 14,000 lbs.

‡Hand brake same as foot brake, standard. Hand brake on drive shaft, special equipment.

Direct Mail Brings 83% Ford Buyers Back for Service

3 LUBRICATIONS ARE GIVEN FREE

Series of Four Letters Used by Firm in Washington

By FRANCIS P. DAILY

ATTRACTIVELY priced specials in various classes of lubrication work and a closely checked system of direct-mail advertising are credited with bringing 83 per cent. of Ford purchasers back to Hill & Tibbitts of Washington for oil and greasing service.

This organization specializes in Alemite service and gives purchasers of new cars three free lubrication services at the 500, 1,000 and 1,500-mile records of the cars. Engine oil is changed at each of these periods and the entire car lubricated under the high pressure grease gun system. No charge is made for labor and materials except for the new engine oil.

A series of four letters are sent to each customer apprising him of these offers. The first letter is mailed upon purchase of the car, while in a couple of weeks the owner is apprised of the free lubrication services due at the attainment of 500 miles on his speedometer.

A short time after the owner has availed himself of the first service, he is reminded that he rates similar service at 100 miles. The last letter reminds of the 1,500-mile service due and also incloses a leaflet on which the flat rates of the firm for various services are quoted.

The first letter is of a general nature and reads:—

"You have secured delivery of a new model A Ford car from us and we wish to thank you for this business. It will be our constant endeavor to make your purchase and its servicing so pleasant that you will be happy to direct your friends here for their purchases too.

"If you haven't already met them, I should be glad to have you come in some day and become acquainted with Mr. Conrad, our shop superintendent and Mr. Brown, our service floor foreman. I shall be glad to introduce them to you.

"Should there be anything that could make your car a source of more satisfaction to you, please let us have the benefit of your suggestions."

THE second letter explains the free service plan in detail, and also makes it clear that these servicings are entirely apart from the Ford Motor Company's guarantee covering defective parts.

The two concluding letters of the group are somewhat in the nature of reminders both of the free servicings and of the firm's special offers. These read as follows:

LETTER NO. 2

"To help you get the greatest possible use from your new Model "A" Ford at a minimum of trouble and expense we offer special 500-mile checking, adjustment and greasing services. Three of these are free. They are entirely separate from the guarantee that covers defective parts which is made by the Ford Motor Company.

"At 500 miles the first inspection is due. It includes a check up of the battery, generator charging rate, distributor, carburetor adjustment, lights, brakes, shock-absorbers, tire inflation and steering gear. The engine oil is also changed and the chassis lubricated through the high pressure grease gun system. No charge whatever is made for labor or materials incidental to this service.

"The labor charge for changing the engine oil and lubricating the chassis is also free, although a charge is made for the new oil.

"This inspection is free for the first 1,500 miles only, and is made thereafter for a nominal flat rate charge.

"It will be our constant effort to relieve you of every detail in the care of your car and to help you get thousands and thousands of miles of enjoyable motoring without a care."

LETTER NO. 3

"Another 500-mile Alemite service inspection, and new car adjustment service will be due on your car when the speedometer reads 1,000 miles.

"As outlined before, there is no charge for this service, nor for the one when the speedometer reads1,500 miles, except for engine oil. After the gratis period we will perform the same operations at a very low flat rate charge.

"We are enclosing a list of attractive accessory items for your perusal. Should you desire anything described we will be pleased to have it installed for you on your next visit. Anything not listed will be secured for you.

"Our service man will be very glad to take care of your car when brought in and he will explain any detail desired."

LETTER NO. 4

"The same 500-mile inspection, adjustment and lubrication service that we rendered free of charge except for the motor oil is available again when your speedometer shows 1,500 miles.

"After the three gratis servicings, Hill & Tibbitts offer a plan of covering these important items. It is priced on a flat rate basis, to include material as well as labor. It is priced so low that you will not do without it.

"It will be our pleasure to render this special service to you as outlined above."

ANOTHER interesting item in this series is a bright red postal card, also used as a follow-up. This carries the picture of a speedometer, emphasized by a pointing arrow directed at the blank mileage space.

A big-letter headline reads, "If Your Speedometer Reads," and is followed by this arrow. The speedometer is filled in with the figures 1000 or 1500, as the previous servicings may indicate. The car also carries the succinct message:

"It is time again for general lubrication and inspection. Experts agree that 85 per cent. of all repair work is the result of neglected lubrication. This may be prevented by driving in your new Ford for service at every 500-mile interval."

Special flat rates offered by this firm include chassis alemiteing (thirty-six places) and spring bath, including greasing clutch collar, for $1.50. Another special includes the work just mentioned with the addition of the removal of both front wheels and greasing hubs and is priced at $2.

The ace offer of the firm, however, is priced at $3.50 and includes five quarts of first class motor oil, chassis alemiteing, hub greasing, bringing transmission oil to level, bringing differential oil to level, checking battery water gravity and connections, checking generator charging rate, checking distributor breaker points and gap, checking idling speed and adjustment, checking all lights, checking and adjusting brakes, checking shock absorber adjustment and seeing that clamp bolts are drawn tight, checking tire pressure and inspecting steering gear ball arm and drig link.

Ford Sales in 5 Months Top 1929 in 23 States

NEW YORK, July 17.—Registrations of the new Ford passenger cars in the first five months of the current year showed increases over the corresponding period of last year in twenty-three states and the District of Columbia, the gains ranging up to 50 per cent., according to statistics gathered from the official registration figures.

These states comprise more than 60 per cent. of the total population of the United States.

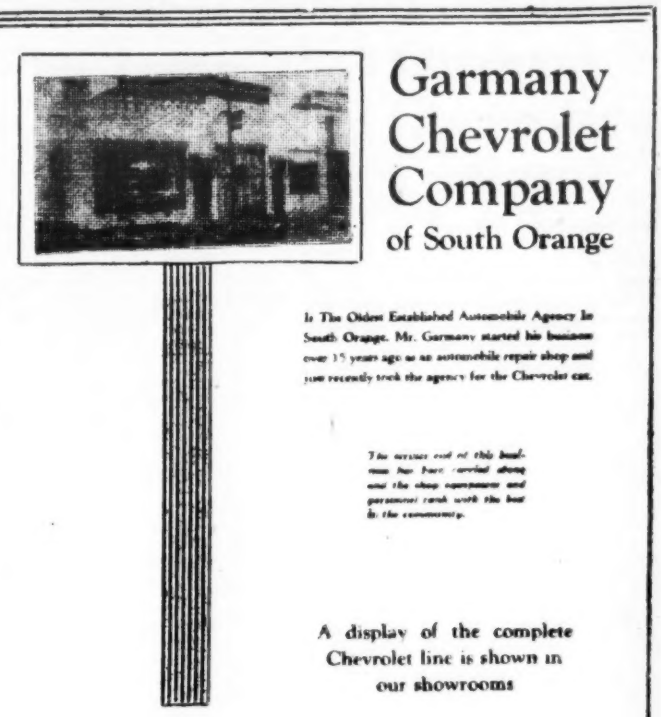
In the twenty-six other states, Ford retail sales were lower than last year, but in each case this car accounted for at least one-third of the total sales of the industry, and in four states—Georgia, North Carolina, Mississippi and Michigan—Ford's share of the total was 50 per cent.

In the country as a whole, Ford registrations showed an increase of 3.1 per cent. over last year, while the industry as a whole showed a decline of 21.3 per cent.

The states in which Ford business has increased over last year, together with the number of cars sold in the first five months of this year and the percentages of gain, follow:—

	Registrations	% Gain
New Jersey	17,548	50.4
New York	45,818	43.4
Vermont	1,512	35.8
Florida	7,943	26.2
Alabama	6,603	26.1
Massachusetts	21,720	24.5
New Hampshire	1,948	22.6
Dist. of Columbia	3,904	19.6
Delaware	1,635	19.5
Connecticut	6,440	19.0
Rhode Island	2,614	18.8
Maryland	7,459	17.8
Washington	8,469	17.1
Illinois	36,196	16.0
Missouri	21,600	15.8
Pennsylvania	37,104	15.5
Wisconsin	15,813	13.2
California	37,641	11.2
Idaho	2,342	10.4
Virginia	10,418	8.3
West Virginia	5,566	7.7
Iowa	16,417	5.8
Minnesota	17,322	3.6
Indiana	19,983	0.5

Unique Ads Successful


Garmany Chevrolet Company
of South Orange
Is The Oldest Established Automobile Agency In South Orange. Mr. Garmany started his business over 15 years ago as an automobile repair shop and just recently took the agency for the Chevrolet car.
A display of the complete Chevrolet line is shown in our showrooms
Garmany Chevrolet Company
10 Valley Street
South Orange, N. J.

THE UNIQUE METHOD of advertising used by the Garmany Chevrolet Company of South Orange, N. J., shown in the above reproduction, is credited with a big share of the business obtained by this concern. The neatness of layout, the photograph of the showroom front and the modest statement of fifteen years in business as an automobile repair shop, and recent acquisition of the Chevrolet dealership have proved attractive. The space taken up by the ad was four columns, eleven inches deep

OPENS USED CAR SHOWROOM

Maplewood, N. J., July 17.—James S. Brown, president and treasurer of Brown Motors, Inc., 1941 Springfield Avenue, Chevrolet dealers, announces the opening of a used car department next door to the new car showroom.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

CUMULATIVE NEW PASSENGER CAR REGISTRATION STATISTICS, JUNE, 1930

Returns for today: Delaware, Maryland, North Dakota, Dist. of Col.

States	Auburn	Austin	Black Hawk	Buick	Cadillac	Chevrolet	Chrysler	Cord	DeSoto	Dodge	Durant	Essex	Ford	Franklin	Gardner	Graham	Hudson	Hupmobile	Jordan	La Salle	Lincoln
Delaware	1			43	11	189	35	1	5	5	11	13	348	1		7	6	10		5	1
Illinois	68		1	532	61	3117	490	26	298	449	71	314	6752	58	8	232	167	217	1	88	46
Maryland	12			111	7	1066	83	1	24	69	18	99	1429	4		72	31	45	1	11	4
N. Dakota	1			15	1	590	47		8	35	23	23	831	1		17	12	2			
D. of C.	11			57	7	431	32	1	18	33	13	46	1078	3		39	22	32	1	15	5
Totals, '30	93		1	758	87	5393	687	29	353	591	136	495	10438	67	8	367	238	306	3	119	56
Del., '29	14			22	7	197	12		1	9	42	57	407	3		2	16	7		10	
Ill., '29	206		8	647	141	3333	574	*	409	785	234	1325	6742	50	27	473	558	323	6	215	60
Md., '29	17		4	123	11	1253	118		50	102	56	266	1669	10		44	66	55	2	19	1
N. D., '29				36	2	706	38		35	72	57	66	1217			29	24	2		4	1
D. of C., '29	11			90	17	376	57		19	20	9	137	950	8	1	61	36	34		15	3
Totals, '29	248	*	12	918	178	5865	799	*	514	988	398	1851	10985	71	28	609	700	421	8	263	66

States	Marmon	Marquette	Nash	Oakland	Oldsmobile	Packard	Peerless	Pierce-Arrow	Plymouth	Pontiac	Reo	Studebaker	Stutz	Viking	Whippet	Willys	Willys Knight	Windsor	Miscellaneous	Totals
Delaware	1	3	3	5	4	17		2	22	29		9			3	6	1		1	798
Illinois	72	124	405	97	446	323	13	42	543	409	38	422	6	17	82	186	88	20	10	16,339
Maryland	11	20	66	32	59	57	1	8	111	98	12	73			36	37	16	23		3,747
N. Dakota	3	8	43	14	21	1			78	52	3	21		3	39	53	9			1,954
D. of C.	5	11	21	29	57	48	12	4	58	71	3	43			6	6	13		5	2,236
Totals, '30	92	166	538	177	587	446	26	56	812	659	56	568	6	20	166	288	127	43	16	25,074
Del., '29		13	34	10	13	10	2	2	25	67		15			3	37	7		1	1,045
Ill., '29	216	157	1034	252	853	370	43	28	716	1396	128	490	12	68	1040	*	169	22	98	23,208
Md., '29	32	57	128	21	90	47	13	11	151	185	16	68	1	2	184		37		3	4,912
N. D., '29	16	8	67	19	71	2			94	112	2	37	1	2	205		39		3	2,967
D. of C., '29	22	27	59	22	98	39	8	11	25	138	9	51		4	48		15	1	8	2,429
Totals, '29	286	262	1322	324	1125	468	66	52	1011	1898	155	661	14	79	1514	*	267	23	113	34,561

*Not in production at that time.

MERCHANDISING ACCESSORIES EQUIPMENT

WHOLESALE

DISTRIBUTION SHOP EQUIPMENT REPLACEMENTS

Establish Buying Idea in Customer, Advises Brosch

HEREWITH is presented another interesting talk in the series on "Successful Service Salesmanship," by George Borsch, manager automotive merchandising and marketing division, Business Training Corporation:—

A service salesman in Dayton had spent more than twenty minutes with one of his customers, checking the condition of the car. He had noted the operations that were needed. They included adjusting the service brakes, tightening and lubricating the steering mechanism, tightening all body and chassis bolts, replacing the timing gears, and repacking the water pump. The car needed every one of these operations, and needed them badly, yet the customer seemed reluctant to give his order to the salesman.

"Oh, I don't know," he said. "It seems like a lot of money to spend. I don't have to have it done today, anyway."

"Today would be a good time," suggested the salesman. "We could handle the job right away."

"I guess I'd better think it over and come in tomorrow, maybe."

The salesman went on talking about the need of the work and the improvement it would make in the car.

"Well, I don't know that the car's worth it," commented the customer. "Sometimes I think I'll just trade it in and get a new one."

"Why do that when the car's got a lot of good miles left in it? You couldn't get what it's really worth to you."

"Do you really think all this work is necessary?" asked the car owner.

"Yes, I certainly do," replied the salesman. "If you decide to have it done, you'll have a car that will be good for a long time yet."

The customer hesitated. "Well, I'll think it over," he said, finally. "I wasn't thinking of having it done right now, anyway." And out he drove.

The salesman was puzzled after the customer left; he could not understand just what had caused his failure to get the sale.

The manager of a large service station in Cedar Rapids, commenting on a situation like this, said:

"I think that one of the greatest weaknesses in automotive selling today is that salesmen are too much inclined to move along easily with the customers, answering his questions, giving him all the information he wants and taking his order if he wants to give it. But I don't call that selling. I'm not satisfied with a man just because he has a pleasant personality and knows his stuff. **I want him to go after the business.**

"The main reason why we have succeeded is that we've drilled it into our salesmen to think about landing the order, right from the word go. If it's a job that comes in on the floor here, I want them to think about getting the signed order. Don't get me wrong — we don't rush our customers—I'm just talking about good selling. I tell the same thing to the men in the front end—if a man comes in to ask about bumpers I want the salesman to picture those bumpers already on the customer's car, and his money in the cash register. For unless the salesman IS thinking that way he won't get the buying idea into the customer's mind."

Obviously the point raised by this manager is correct and it is **important.** If you want the customer to buy, **get him thinking about buying.** This is especially true in handling the difficult sale in which the customer is so likely to be preoccupied with his prejudices, misconceptions or objections that he may not stop to give honest thought to the question of buying—**unless the salesman leads the way.**

Editor's Column

AT last a use has been found for peddlers of parts and tools, and strange as it seems, a jobber has come to the front in favor of "the better type peddler."

In the past if you mentioned peddler to a jobber, all you would get was a growl or perhaps an idea of where Mr. Jobber would like to send all peddlers.

But now from Philadelphia comes the illuminating information that peddlers come in handy when this jobber has lines he wants to weed out due to slow turnover. This concern says it has dealings with about 100 such peddlers.

"When we find we have such slow stock, we are glad to let it go at a low price to these men, whom we encourage as outlets in such emergencies," an official of the concern stated. "While some of them sell to some of the same classes of trade that we have as customers, they do not compete with us."

We wonder what the other jobbers, those who have no use for peddlers, will say to this. Probably many of them never looked at the peddler as an aid to them.

THE anti-freeze manufacturers, who sell most of their products through jobbers, have started earlier than usual this year to interest not only the trade, but the riding public, in their goods. A field salesman for one of these manufacturers told the writer that orders already taken up to July 1 were nearly as great as the concern's total business last year and the work is not half done.

The fact is that more cars are being used nowadays the entire year round and anything of this nature to keep the car going in cold weather, is, if put over right, bound to take hold of the public's fancy.

The next step should be a sure-fire device, inexpensive to buy and simple to install, to guarantee the starting of the car in cold weather without having to resort to the crank.

IT is hoped that this is not the old adage of a new broom, but the new motor vehicle commissioner of New Jersey, only a few months in office, has made two moves that have resulted in much rejoicing among jobbers, car dealers and in fact the entire automotive industry in the state.

The first, getting the state legislature to wipe out the objectionable features of the responsibility liability law. The act as it was first written scared away some car sales.

His next and most recent move was to legalize the use of thirty-two candlepower headlight bulbs in place of the twenty-one candlepower limit, ruling that it was not the lights, but the focus that blinds.

Two other plans which the commissioner has in mind will also aid car sales and the automotive business in general. One would be a compulsory examination of all cars, with fees for inspection stations and certificates which would be necessary before new registrations would be issued. The second has to do with bills of sale to make it harder for thieves to dispose of stolen cars.

SOUTHERN WHOLESALERS BUY CRUMP COMPANY

Winchester, Va., July 17.—Southern Wholesalers, Inc., of Washington has purchased the Winchester business of the Benjamin T. Crump Company, which is closing its local branch. The purchaser states that a larger and more varied stock will enable it to render a better and more profitable service to dealers in the future. It will specialize in replacement parts and also garage equipment and the Atwater Kent Radio. The Crump stock is being moved to the company's place of business at 38-40 West Boscawer St.

O. M. K. AUTO PARTS CORP. FORMED IN JAMESTOWN, N. Y.

Jamestown, N. Y., July 17.—The O. M. K. Auto Parts Corporation has been organized and incorporated, with a capital of $50,000. It is planned to establish and operate a wholesale automobile accessory and unit parts business, covering southwestern New York and northwestern Pennsylvania. Principals of the new concern are Melvin A. Nickerson, Kenneth N. Nickerson, 138 Linwood Ave., and Clayburn N. Dahlgren, 305 East 2d St.

NEARLY 5,000 ATTEND SEATTLE GARAGE OPENING

Seattle, Wash., July 17.—Many from Spokane, Seattle and other Washington cities, as well as some from Montana points, attended the formal opening of the new Yellowstone Trail Garage at Wallace, Idaho, recently. The event was a big success. Over 100 floral pieces were given to the owners and the attendance was 4,800. The building is 135 by 155 feet ground floor dimensions. It is a ramp style garage, with two floors. It ranks easily with the very finest car dealership building and service departments in the Northwest, and is a credit to Wallace. Location is close to the former home of the firm. Messrs. Pauling and Wellman are managers.

ALUMINUM INDUSTRIES EXPANDS SALES DIVISION

Cincinnati, O., July 17.—Increased demand for Permite Diamond products, manufactured by Aluminum Industries, Inc., has necessitated expansion of the statistical division of the sales department, resulting in the appointment of E. R. Michener, widely known in the automotive field, as the head of that division. Mr. Michener, who has had fifteen years' experience in the trade, as salesman, executive and statistical expert, spent six years as a salesman, then organized the Motor Parts Company of St. Louis, which later was consolidated with the H. & H. Machine Company of the Mound City. Since the consolidation Michener has been with the sales department of that concern.

Ammco Offers New Piston Pin Hole Grinder

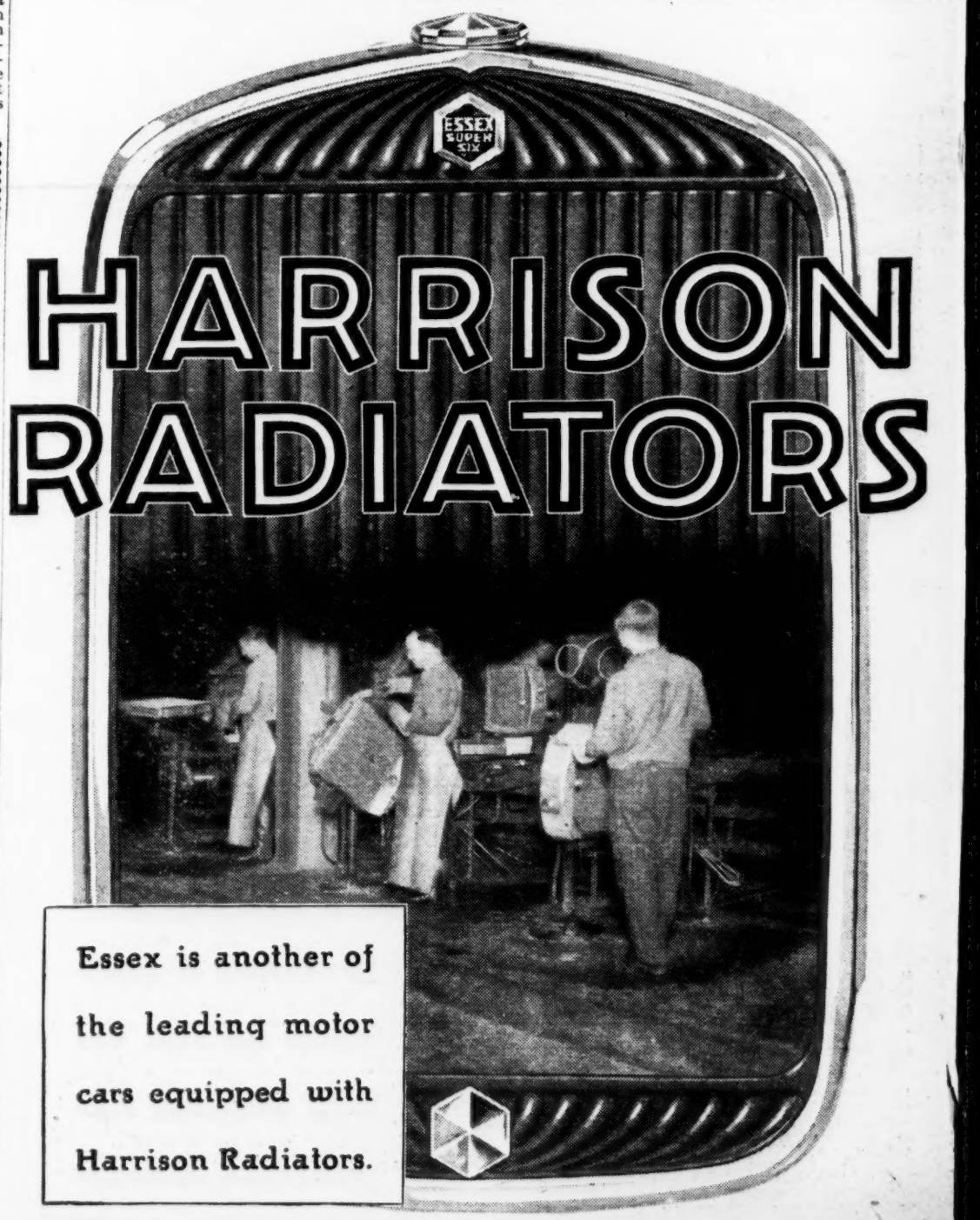
THE Ammco piston pin hole grinder is claimed by the maker to work fast, maintain perfect alignment and leave a mirror finish that provides a round, smooth, full bearing surface without blade marks.

The Ammco piston pin hole grinder is said to operate in any electric drill, lathe or drill press; and one tool handles all sizes of piston pin and bushing holes in the piston or connecting rod. Bronze, alloy, cast iron and steel are claimed to be ground equally well. Any kind of fit may be had—a push fit, press fit or shrink fit.

Three abrasive pads mounted in metal channels slide over the carriers. Three sets of carriers, furnished with the grinder, provide a complete range from 47-64 inch to $1\frac{3}{8}$ inch, and an additional adjustment of .040 inch below or above the limits.

The tool is expanded by turning a single expansion nut. The abrasive pads are used with a slight amount of oil and each set of pads, it is said, will do approximately four six-cylinder jobs, removing metal at the rate of one to three thousandths per minute. The replacements are said to be inexpensive.

The body of the tool is short, assuring such rigid support for the abrasive pad carriers that accuracy is positively maintained and bell-mouthing is prevented, the makers say.

INDIANAPOLIS A. M. A. HOLDS ANNUAL OUTING

Indianapolis, Ind., July 17.—Members of the Indianapolis Automotive Maintenance Association and their families held their second annual summer outing at Walnut Gardens, a resort playground near here, Tuesday. A parade composed largely of wreckers and service trucks and private cars of association members, led by one of the new Bantam Austins, marked the beginning of the day's program, which was given over entirely to play and recreation.